Seismic Retrofit Project

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS

AND

SPECIAL PROVISIONS

FOR CONSTRUCTION ON

STATE HIGHWAY

IN

SAN MATEO AND ALAMEDA COUNTIES IN
FOSTER CITY AND HAYWARD ON THE
SAN MATEO-HAYWARD BRIDGE

DISTRICT 04, ROUTE 92

For use in Connection with Standard Specifications **DATED JULY, 1992,** Standard Plans **DATED JULY, 1992,** and Labor Surcharge And Equipment Rental Rates.

CONTRACT NO. 04-043624

(INFORMAL BIDS CONTRACT)

04-SM,Ala-92-R16.5/R18.8,R0.0/R2.6

Bids Open: July 23, 1997

Dated: June 2, 1997

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STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Governor
DEPARTMENT OF TRANSPORTATION
ESC/OE MS#43
P.O. Box 942874
SACRAMENTO, CA 94274-0001

TDD (916) 654-4014

July 17, 1997

04-SM,Ala-92-R16.5/R18.8,R0.0/R2.6
04-043624

Addendum No. 4

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD ON THE SAN MATEO-HAYWARD BRIDGE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract. The contract documents to be executed will contain a copy of this addendum.

Bids for this work will be opened on July 23, 1997.

This addendum is being issued to revise the Notice to Contractors and Special Provisions.

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," the number of WORKING DAYS is revised to 480.

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the last paragraph is revised to read as follows:

"The first order of work shall be the ordering of the steel shells for the cast-in-steel shell piling and the structural steel (bridge). The Contractor shall furnish the Engineer a statement from the structural steel (bridge) manufacturer that the order for the structural steel (bridge) has been received and accepted including the date when the structural steel (bridge) will be delivered on site. If the Contractor has the necessary structural steel (bridge) materials on hand, he will not be required to furnish the statement."

An additional materials information handout titled, "Preconstruction Checklist for the San Mateo Bridge Seismic Retrofit Project," will be sent by UPS overnight mail to Proposal and Contract book holders only under separate cover.

To Proposal and Contract book holders:

INDICATE RECEIPT OF THIS ADDENDUM BY FILLING IN THE NUMBER OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE SIGNATURE PAGE OF THE PROPOSAL.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by confirmed facsimile to all book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Plans, Specifications &
Estimates Branch
Office of Office Engineer

Attachments

STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Governor
DEPARTMENT OF TRANSPORTATION
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SACRAMENTO, CA 94274-0001

TDD (916) 654-4014

July 16, 1997

04-SM,Ala-92-R16.5/R18.8,R0.0/R2.6
04-043624

Addendum No. 3

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD ON THE SAN MATEO-HAYWARD BRIDGE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract. The contract documents to be executed will contain a copy of this addendum.

Bids for this work will be opened on July 23, 1997.

This addendum is being issued to revise the Project Plans and the Notice to Contractors and Special Provisions.

On Project Plan Sheet 31, under "GENERAL NOTES, LOAD FACTOR DESIGN," the designation for Structural Steel is revised to A709 Grade 50.

In the Special Provisions, Section 5-1.23, "AREAS FOR CONTRACTOR'S USE," the following paragraph is added:

"Werder Fishing Pier shall not be available for any use by the Contractor."

In the Special Provisions, Section 10-1.18C, "DREDGING," the fourth paragraph is amended to read as follows:

"Dredging will be limited to the locations specified in these special provisions."

In the Special Provisions, Section 10-1.18C, "DREDGING," the following paragraph is added after the fifth paragraph:

"The maximum amount of actual dredging which consists of clean out of steel casings shall not exceed 410 cubic yards for the entire project."

In the Special Provisions, Section 10-1.29, "STEEL STRUCTURES," the following paragraphs are added in the Sub-section, "FABRICATION":

"Galvanized structural steel shall not require cleaning and painting at contact surfaces of connections.

The first paragraph of Section 55-3.14A(1), "Punching," of the Standard Specifications shall not apply to the short slotted holes in the steel channel seat extenders."

To Proposal and Contract book holders:

INDICATE RECEIPT OF THIS ADDENDUM BY FILLING IN THE NUMBER OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE SIGNATURE PAGE OF THE PROPOSAL.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by confirmed facsimile to all book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Plans, Specifications &
Estimates Branch
Office of Office Engineer

STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Governor
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ESC/OE MS#43
P.O. Box 942874
SACRAMENTO, CA 94274-0001

TDD (916) 654-4014

July 15, 1997

04-SM,Ala-92-R16.5/R18.8,R0.0/R2.6
04-043624

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD ON THE SAN MATEO-HAYWARD BRIDGE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract. The contract documents to be executed will contain a copy of this addendum.

Bids for this work will be opened on July 23, 1997 instead of the original date of July 15, 1997.

This addendum is being issued to set a new bid opening date as shown herein.

Another addendum will follow.

To Proposal and Contract book holders:

INDICATE RECEIPT OF THIS ADDENDUM BY FILLING IN THE NUMBER OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE SIGNATURE PAGE OF THE PROPOSAL.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by confirmed facsimile to all book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Plans, Specifications &
Estimates Branch
Office of Office Engineer

STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY PETE WILSON, Governor
DEPARTMENT OF TRANSPORTATION
ESC/OE MS#43
P.O. Box 942874
SACRAMENTO, CA 94274-0001

TDD (916) 654-4014

June 26, 1997

04-SM,Ala-92-R16.5/R18.8,R0.0/R2.6
04-043624

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD ON THE SAN MATEO-HAYWARD BRIDGE.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract. The contract documents to be executed will contain a copy of this addendum.

Bids for this work will be opened on July 15, 1997.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions, and the Engineer's Estimate.

On Project Plan Sheet 9, in Project Note 31, the following note is added:

"MAINTAIN FACILITIES DURING CONSTRUCTION"

Project Plan Sheets 30, 31, 32, 36, 37, 42, 43, 44 and 45 are revised. Half-sized copies of the revised sheets are attached for substitution for the like numbered sheets.

On Project Plan Sheets 33, 34, 35, 63, 64, 65, 66 and 67, the "Plans Approval Date" is revised to "5-5-97".

A MATERIALS INFORMATION regarding approximate mud elevations is added as attached.

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," the fifth paragraph is deleted.

In the Special Provisions, Section 5-1.10, "SURFACE MINING AND RECLAMATION ACT," the following paragraph is added:

"All sand, gravel, aggregates, imported borrow or other minerals shall have either a SMARA AB 3098 list number or, if dredging from the bay, a permit from the Bay Conservation and Development Commission (BCDC) with a permit number which states the specific location and/or parcel number of the source of the material. The Contractor must also included this information on the HC-30 “Notice of Materials to be Used."

In the Special Provisions, Section 5-1.19, "RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD," is revised as attached.

In the Special Provisions, Section 5-1.20, "RELATIONS WITH ARMY CORPS OF ENGINEER," the last sentence of the fifth paragraph is deleted.

In the Special Provisions, Section 5-1.21, "RELATIONS WITH BAY CONSERVATION AND DEVELOPMENT COMMISSION," the fifth, sixth and seventh paragraphs are revised to read:

"When the Contractor is notified by the Engineer that a modification to the permit is under consideration, no work will be allowed which is inconsistent with the proposed modification until the Departments take action on the proposed modifications.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Any modifications to any agreement between the Department of Transportation and Bay Conservation and Development Commission will be fully binding on the Contractor, and the provisions of this section shall be made a part of every subcontract executed pursuant to this contract."

In the Special Provisions, Section 5-1.22, "RELATIONS WITH THE UNITED STATES COAST GUARD," the following paragraph is added after the first paragraph:

"Attention is directed to Section 8-1.06, "Time of Completion," of the Standard Specifications. Days during which the Contractor's operations are restricted in the navigable channel by the requirements of this section, shall be considered to be nonworking days if these restrictions cause a delay in the current controlling operation or operations."

In the Special Provisions, Section 5-1.24, "UTILITIES," the first paragraph is amended to read:

"The Contractor will not be permitted to use existing State utilities on the bridge or within the contract limits."

In the Special Provisions, Section 5-1.27, "ACCESS TO JOBSITE," the telephone number of the Bridge Manager is changed to (510) 782-9355.

In the Special Provisions, Section 5-1.28, "DRAWINGS," in the second paragraph, the following item is added:

"4. Electronic CADD files are required of all approved working drawings."

In the Special Provisions, Section 5-1.29, "PERMITS AND LICENSES," the title, "District Director of Transportation" in the third paragraph is changed to "Toll Bridge Seismic Program Duty Senior".

In the Special Provisions, Section 5-1.30, "AERIALLY DEPOSITED LEAD," in the third paragraph, the term "Duty Senior's Desk" is changed to "Toll Bridge Seismic Program Duty Senior's Desk" and the phone number is revised to (510) 286-5549.

In the Special Provisions, Section 5-1.31, "CONTAMINATED MATERIAL, GENERAL," in the second paragraph, the term "Duty Senior's Desk" is changed to "Toll Bridge Seismic Program Duty Senior's Desk" and the phone number is revised to (510) 286-5549.

In the Special Provisions, Section 5-1.31, "CONTAMINATED MATERIAL, GENERAL," in the third paragraph, the 90 days is revised to 30 days.

In the Special Provisions, Sections, 5-1.32, "SOUND CONTROL REQUIREMENTS," and 5-1.33, "TRANSPORTATION FOR THE ENGINEER," are added as attached.

In the Special Provisions, Section 9, "DESCRIPTION OF BRIDGE WORK," the span and length of the structure to be retrofitted is revised to 857 and 25,710 feet respectively.

In the Special Provisions, Section 10-1.02, "ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM," the Sub-sections "HARDWARE REQUIREMENTS" and "SUPPORT REQUIREMENTS" are revised as attached.

In the Special Provisions, Section 10-1.04, "WATER POLLUTION CONTROL," is revised as attached.

In the Special Provisions, Section 10-1.05, "NON-STORM WATER DISCHARGES," is revised as attached.

In the Special Provisions, Section 10-1.07, "COOPERATION," the last sentence of the fourth paragraph is revised to read:

"The Contractor shall participate in weekly work planning meetings with the Engineer for the purpose of coordinating his work with the work of other contractors, State and other agency forces."

In the Special Provisions, Section 10-1.08, "PROGRESS SCHEDULE (CRITICAL PATH)," is revised as attached.

In the Special Provisions, Section 10-1.12, "MAINTAINING TRAFFIC," the tenth paragraph regarding closures during events at 3-Com Park and Bay Meadows, is deleted.

In the Special Provisions, Section 10-1.12, "MAINTAINING TRAFFIC," in the eleventh paragraph, March 31 (Cesar Chavez Day) is included in the list of designated legal holidays.

In the Special Provisions, Section 10-1.12, "MAINTAINING TRAFFIC," the Sub-section "SCHEDULING CLOSURES," is added before to Sub-section, "LIQUIDATED DAMAGES," as attached.

In the Special Provisions, Section 10-1.13, "TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE," the following paragraph is added in the Sub-section, "PAYMENT":

"The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. Such adjustment will be made on a force account basis as provided in Section 9-1.03, "Force Account Payment," of the Standard Specifications for increased work, and estimated on the same basis in the case of decreased work."

In the Special Provisions, Section 10-1.16, "EXISTING HIGHWAY FACILITIES," the following paragraph is added:

"Attention is directed to Section 7-1.06, "Safety and Health Provisions," of the Standard Specifications. Work practices and worker health and safety shall conform to the Construction Safety Orders Title 8, of the California Code of Regulations including Section 5158, "Other Confined Space Operations."

In the Special Provisions, In Sub-sections, 10-1.16D, "REMOVE CONCRETE DECK SURFACE," and 10-1.16E, "PREPARE CONCRETE BRIDGE DECK SURFACE," the following paragraph is added:

"Attention is directed to "Non-Storm Water Discharges" and "Water Pollution Control" elsewhere in these special provisions."

In the Special Provisions, Sub-section 10-1.16H, "TEMPORARY SUPPORTS," is added as attached.

In the Special Provisions, Sub-section 10-1.18B, "MATERIAL WITH AERIALLY DEPOSITED LEAD," is revised as attached.

In the Special Provisions, Sub-section 10-1.18C, "DREDGING," is revised as attached.

In the Special Provisions, Section 10-1.19, "PILING," the following paragraph is added after the last paragraph of the Sub-section, "Cleaning Out Steel Shells":

"All materials removed by the cleaning out of steel shells shall be considered for the purpose of disposal to be "California Hazardous". Upon the receipt of the Site Investigation Report, the removed materials will be reclassified and the item for driving pile will be adjusted."

In the Special Provisions, Section 10-1.19, "PILING," the sixth paragraph of the Sub-section, "MEASUREMENT AND PAYMENT," regarding compensation for additional cost of splicing for precast prestressed piling, is deleted.

In the Special Provisions, in Sections 10-1.19, "PILING"; 10-1.20, "CONCRETE STRUCTURES"; 10-1.21, "DRILL AND BOND DOWEL (EPOXY CARTRIDGE)"; 10-1.22, "DRILL AND BOND DOWELS"; 10-1.23, "CORE CONCRETE (1", 1 1/2", 3")"; 10-1.24, "CORE CONCRETE AND PRESSURE GROUT"; and 10-1.25, "POLYESTER CONCRETE OVERLAY," the following paragraph is added:

"Attention is directed to "Non-Storm Water Discharges" and "Water Pollution Control" elsewhere in these special provisions."

In the Special Provisions, Section 10-1.29, "STEEL STRUCTURES," the following paragraph is added after the third paragraph:

"Structural steel (bridge) shall include the steel channel seat extenders."

In the Special Provisions, Section 10-1.30, "MISCELLANEOUS METAL (BRIDGE)," the "Steel Channel Seat Extenders" is deleted from the list of miscellaneous bridge metal items.

In the Special Provisions, Section 10-1.30, "MISCELLANEOUS METAL (BRIDGE)," the fourth paragraph is revised to read:

"All miscellaneous bridge metal shall be hot-dip galvanized after fabrication."

In the Special Provisions, Section 10-1.31, "DECK PLATE ASSEMBLY," the first sentence of the first paragraph under the sub-section, "NONSKID SURFACE," is revised to read:

"The top surface of the deck expansion plates shall receive a nonskid surface consisting of a composite tungsten carbide traction surface."

In the "Copy of Engineer's Estimate" in the NOTICE TO CONTRACTORS and the "Engineer's Estimate" in the PROPOSAL, Items 1, 2, 31, 32 and 34 are revised; Items 46 and 47 are added; and Items 15 and 45 are deleted as attached.

To Proposal and Contract book holders:

REPLACE THE ENTIRE ORIGINAL ENGINEER'S ESTIMATE IN THE PROPOSAL WITH THE ATTACHED REVISED ORIGINAL ENGINEER'S ESTIMATE. THE REVISED ENGINEER'S ESTIMATE IS TO BE USED IN THE BID SUBMITTAL AND INSERTED IN THE PROPOSAL.

INDICATE RECEIPT OF THIS ADDENDUM BY FILLING IN THE NUMBER OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE SIGNATURE PAGE OF THE PROPOSAL.

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If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Plans, Specifications &
Estimates Branch
Office of Office Engineer

Attachments

5-1.19 RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

The location of the San Mateo-Hayward Bridge, Br. No. 35-0054 is within an area controlled by the Regional Water Quality Control Board. Regional Water Quality Control Board Order No. 94-098 has been issued covering work to be performed under this contract. The Contractor shall fully inform himself of all rules, regulations and conditions that may govern his operations in said area and shall conduct his work accordingly.

Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001, Telephone No. (916)654-4490, and are available for inspection at the office of the District Director of Transportation at 111 Grand Avenue, Oakland, California.

Attention is directed to Sections 7-1.11, "Preservation of Property," and 7-1.12, "Responsibility for Damage," of the Standard Specifications.

Any change in the above listed conditions proposed by the Contractor shall be submitted to the Engineer for transmittal to the Regional Water Quality Control Board for their approval. Changes shall not be implemented until approved in writing by the Regional Water Quality Control Board.

5-1.32 SOUND CONTROL REQUIREMENTS

Sound control shall conform to the provisions in Section 7-1.01I, "Sound Control Requirements," of the Standard Specifications and these special provisions.

The noise level from the Contractor's operations, between the hours of 7:00 p.m. and 8:00 a.m., shall not exceed 86 dbA at a distance of 50 feet. No pile driving operation will be allowed between the hours of 7:00 p.m. and 8:00 a.m. This requirement in no way relieves the Contractor from responsibility for complying with local ordinances regulating noise level.

Said noise level requirement shall apply to all equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

5-1.33 TRANSPORTATION FOR THE ENGINEER

Attention is directed to Section 5-1.08 "Inspection," of the Standard Specifications and these Special Provisions.

The Engineer and all authorized representatives of the State, acting within the scope of their duties in connection with the work under this contract, shall be permitted to ride as passengers, without charge on any boat operated by, or for, the Contractor for the transportation of personnel, equipment or materials. It is agreed that that such rides will be taken only on boats, which are making trips in connection with the Contractor’s operation. Any personal protective equipment, safety training for state personnel shall be supplied by the Contractor. Full compensation for conforming to the above mentioned requirements shall be considered as included in the contract price paid for the various items of work and no separate payment will be made therefor.

HARDWARE REQUIREMENTS.--The Contractor shall furnish all hardware required for the electronic mobile daily diary computer system, including PDAs, desktop systems, servers, printers, and miscellaneous hardware. The minimum requirements for the various classes of hardware are as follows:

PDA: Apple Newton 2000 MessagePad, or 100% compatible with 5 MB RAM card, 8MB ROM charging station, carrying case, and Newton OS 2.0.

PC P166MMX, 24 RAM, 2.5 GB, 16X CD-ROM, and Windows NT user (client) license.

Database server: IBM PC or 100% compatible with 133 MHz Pentium, 48 MB RAM, 2 GB hard drive, CD-ROM, DAT drive, UPS, 33.6K modem, network adapter, 800x600 monitor, keyboard, mouse, Windows NT 3.51 OS, and Oracle Workgroup Server 2000 for NT v7.2.

Printer: HP LaserJet 5-series or 100% compatible.

Network: Ethernet network with twisted-pair wiring and passive hub.

The Contractor shall supply hardware for the system in the following quantities:

10 – PDA and accessories as described above.
02– desktop workstations as described above.
01- database servers as described above.
01– printers as described above.
as need it – misc. network hardware and cables as described above.
03 – PDA keyboards.
02 – PDA print packs.
10– Oracle Workgroup Server licenses.
30 - WriteRight screen enhancers
20 - Replacement styluses for PDAs

SUPPORT REQUIREMENTS.--The Contractor shall furnish all support required for the electronic mobile daily diary computer system. The minimum requirements for support are as follows:

Installation: initial on-site installation and verification of hardware, software and networks.

Training: initial on-site training for one half day for up to (10) Caltrans inspectors and database/system administrators.

Telephone and e-mail support: the Caltrans system administrator may submit operational questions by telephone during normal business hours or by electronic mail at any time. Emergencies will receive immediate attention, and other questions will be answered within one business day.

Software updates: occasional maintenance updates to the application software, as needed.

On-site visits: scheduled visits to the installation site to check system operation,, provide “refresher” or advanced training, install software updates, etc., as agreed with the Engineer.

The Contractor shall furnish support required for the Electronic Mobile Daily Diary Computer System for a period of 24 months following award of contract.

10-1.04 WATER POLLUTION CONTROL

Water pollution control work shall conform to the requirements in Section 7-1.01G, "Water Pollution," of the Standard Specifications, and these special provisions.

This project shall conform to the requirements of Local Permit No. CAS029998 issued by the San Francisco Bay Regional (Region 2) Water Quality Control Board. This Local Permit, hereafter referred to as the "Permit," regulates storm water discharges associated with construction activities.

Water pollution control work shall conform to the requirements of the "Caltrans Storm Water Quality Handbook, Construction Contractor's Guide and Specifications", dated April 1997 hereafter referred to as the "Handbook". Copies of the Handbook may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916)445-3520. In addition, a Conceptual Storm Water Pollution Prevention Plan, hereafter referred to as the "CSWPPP," has been prepared for this project by the Department. The CSWPPP shall be used as a reference for determining and preparing the minimum work required under the Permit and these Special Provisions.

Copies of the Handbook, CSWPPP, and the Permit are available for review at 111 Grand Avenue Oakland, California 94601. Please call the Toll Bridge Seismic Program Duty Senior, telephone number (510) 286-5549 to reserve a copy of the documents at least 24 hours in advance.

The Permit requires the Department to develop, implement and maintain a Storm Water Pollution Prevention Plan. The Contractor shall comply with all applicable provisions of the Permit. The Contractor shall be responsible for all fines, damages and job delays incurred due to failure to implement the requirements of the Permit.

All areas outside of the project limits disturbed by the Contractor for the prosecution of the work shall also be subject to the requirements of these special provisions. The Contractor shall be fully responsible for all costs and liabilities associated with water pollution control measures in areas outside the project limits.

The Contractor shall become fully informed of the conditions of the Permit that govern the Contractor's operations and shall conduct the construction operations accordingly.

The Contractor shall maintain a copy of the Permit at the construction site and shall make the Permit available to operating personnel during construction activities.

Conformance with the requirements of this section shall not relieve the Contractor from the Contractor's responsibilities, as provided in Section 7-1.11, "Preservation of Property," and Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

The Contractor shall, at reasonable times, allow authorized agents of the State Regional Water Quality Control Board, State Water Resources Control Board, U.S. Environmental Protection Agency, and local storm water management agency, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the construction site and the Contractor's facilities pertinent to the work;
2. Have access to and copy any records that must be kept as specified in the Permit;
3. Inspect the construction site and related erosion and sediment control measures; and
4. Sample or monitor for the purpose of ensuring compliance with the Permit.

The Contractor shall notify the Engineer immediately upon request from Regulatory Agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records.

STORM WATER POLLUTION PREVENTION PLAN PREPARATION, APPROVAL, AND UPDATES.--As part of the water pollution control work, a Storm Water Pollution Prevention Plan, hereafter referred to as the "SWPPP", is required for this contract. The SWPPP shall conform to the requirements in Section 7-1.01G, "Water Pollution," of the Standard Specifications, the requirements in the Handbook, the requirements of the Permit, and these special provisions.

The objectives of the SWPPP shall be to identify pollution sources that may affect the quality of storm water discharges and to identify, construct, implement and maintain water pollution control measures, hereafter referred to as control measures, to reduce pollutants in storm water discharges associated with construction activity under the contract.

The SWPPP shall incorporate control measures in all of the following categories:

1. Erosion and sediment source control practices;
2. Sediment treatment control practices;
3. Tracking control practices;
4. Wind erosion control practices;
5. Construction waste management practices; and
6. Non-storm water management practices

REVISED PER ADDENDUM NO. 1 DATED JUNE 26, 1997

Control measures shall include all minimum requirements specified in the Handbook. In addition, the Contractor shall consider all potential control measures listed and described in the Handbook in each of the above categories. The Contractor shall document the selection process in accordance with the procedure outlined in the Handbook.

The SWPPP shall graphically indicate where control measures will be used during all phases of construction.

The SWPPP shall include all items required by the Permit including, but not limited to the following:

1. A location map;
2. A site map;
3. A narrative description of known on-site toxic materials, practices to minimize the contact of construction materials with storm water, material and equipment handling areas, pollution control measures, on-site construction materials storage and disposal methods, and existing and proposed soil conditions and fill material;
4. A list of pollutants that are likely to be present in the storm water discharge and pollution control measures to reduce the pollutant levels in the storm water;
5. An estimate of the site specific construction data, including construction area, runoff coefficients, and percentages of impervious area; and
6. A listing, provided by the Engineer, of the permanent and post-construction control measures.

The SWPPP shall include the signature and title of the person responsible for the preparation of the SWPPP. The SWPPP shall also indicate the date of initial preparation.

Within 15 days after the approval of the contract, the Contractor shall submit 3 copies of the SWPPP to the Engineer. The Contractor shall allow 15 days for the Engineer to review the SWPPP. If revisions are required, as determined by the Engineer, the Contractor shall submit a revised plan within 10 days. No work having potential to cause water pollution, as determined by the Engineer, shall be performed until the SWPPP has been approved by the Engineer. Upon approval, 3 additional copies shall be submitted to the Engineer with the required changes. Minor changes or clarifications to the initial submittal may be made and attached as amendments to the SWPPP. In order to allow construction activities to proceed, the Engineer may conditionally approve the SWPPP while minor amendments are being completed.

The Contractor shall amend the SWPPP, graphically and in narrative form, whenever there is a change in construction activities or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, municipal storm drain systems, or when deemed necessary by Engineer. The SWPPP shall also be amended if it is in violation of any condition of the Permit, or has not achieved the general objective of reducing pollutants in storm water discharges. Amendments shall be dated and logged in the SWPPP and attached to the onsite document.

The Contractor shall keep a copy of the SWPPP, together with updates, revisions and amendments, at the construction site. The SWPPP shall be made available upon request of a representative of the Regional Water Quality Control Board or local agency. Requests by the public shall be directed to the Engineer.

By June 15 of each year, the Contractor shall submit an annual certification to the Engineer stating compliance with the requirements governing the Permit. If the project is in non-compliance at any time, the Contractor shall make a written report to the Engineer within 48 hours of identification of non-compliance.

COST BREAKDOWN.--With the submittal of the SWPPP, the Contractor shall furnish to the Engineer for approval a cost breakdown for the lump sum item of water pollution control work measures. The cost breakdown shall reflect all items of work, quantities and costs for the water pollution control work measures.

No adjustment in compensation will be made in the contract lump sum price paid for water pollution control due to any differences between the quantities shown in the cost breakdown furnished by the Contractor and the quantities required to complete the work shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in the cost breakdown shall be equal to the contract lump sum price bid for water pollution control.

The cost breakdown shall be approved in writing by the Engineer, before any progress payment for the item of Water Pollution Control work measures will be made. The approved cost breakdown will be used to determine progress payments during the progress of the work and as the basis for calculating any adjustment in compensation for the item of Water Pollution Control work measures due to changes in the construction work ordered by the Engineer.

STORM WATER POLLUTION PREVENTION PLAN IMPLEMENTATION.--Upon approval of the SWPPP, the Contractor shall be responsible for installing, constructing, and implementing all control measures included in the SWPPP. Requirements for installation, construction and implementation of control measures are specified in the Handbook.

If the control measures being taken by the Contractor are inadequate to control water pollution effectively, the Engineer may require the Contractor to revise the operations and amend the SWPPP.

Erosion and sediment control measures shall be provided throughout the winter season defined as between September 15 and May 1.

Implementation of erosion and sediment control measures shall be completed no later than 20 days prior to the beginning of the winter season.

During the winter season, each active, soil-disturbed, construction location, including stockpiled materials at storage or staging areas, shall be no more than 10 acres in size. The Contractor shall demonstrate the ability to fully deploy erosion control measures to protect the entire construction area before the onset of precipitation. The Engineer may approve on a case-by-case basis expansions of the 10 acre site limit.

During the winter season, nonactive construction areas that have the potential to erode due to previous construction activities shall be fully protected.

During the winter season, active construction locations shall be fully protected at the end of each working day, unless fair weather is predicted through the following work day. The weather forecast shall be monitored by the Contractor on a daily basis. The 3 to 5 day National Weather Service forecast shall be used. The Contractor may propose an alternative weather forecast for use if approved by the Engineer. If precipitation is predicted prior to the end of the following work day, construction scheduling shall be modified, as required, to provide functioning water pollution control measures prior to the onset of the precipitation.

If the work in any area has not progressed to a point where all or part of the facilities on the SWPPP for that area can be constructed, the Contractor shall construct such supplementary control facilities as are necessary to protect adjacent private and public property.

Construction waste management control measures, such as vehicle maintenance and waste control measures, shall be provided year-round through the duration of the project.

The Engineer may order suspension of construction operations which create pollution if the Contractor fails to conform to the requirements of this section, "Water Pollution Control," as determined by the Engineer.

INSPECTION AND MAINTENANCE.--To ensure the proper implementation and functioning of control measures, the Contractor shall regularly inspect and maintain the construction site for the control measures identified in the SWPPP. The Contractor shall identify corrective actions and time frames to address any damaged measures or reinitiate any measures that have been discontinued.

The construction site inspection checklist provided in the CSWPPP shall be used to ensure that the necessary measures are being properly implemented and to ensure that the control measures are functioning adequately. The Contractor shall submit one copy of each site inspection record to the Engineer.

Inspections of the construction site shall be conducted by the Contractor to identify deficient measures as follows:

1. prior to a forecasted storm;
2. after each storm event;
3. at 24 hour intervals during extended precipitation events; and
4. routinely, on a weekly basis.

If the Contractor identifies a deficiency in the deployment or functioning of an identified control measure, the deficiency shall be corrected immediately. If the Engineer identifies a deficiency in the deployment or functioning of an identified control measure, the Contractor will be notified in writing and the deficiencies shall be corrected by the Contractor immediately.

PAYMENT.--The contract lump sum price paid for storm water pollution prevention plan shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in developing, obtaining approval of, and updating the storm water pollution prevention plan, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for storm water pollution prevention plan will be made as follows:

1. When the storm water pollution prevention plan has been reviewed and approved by the Engineer, an 80 percent payment will be made; and
2. When the project has been completed, the remaining 20 percent payment will be made.

The contract lump sum price paid for water pollution control shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing, constructing, implementing, inspecting and maintaining control measures, excluding preparing the storm water pollution prevention plan, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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The Engineer will retain an amount equal to 25 percent of the estimated value of all contract work performed during estimate periods in which the Contractor fails to conform to the requirements of this section, "Water Pollution Control," as determined by the Engineer.

Retentions for failure to conform to the requirements of this section shall be in addition to all other retentions provided for in the contract. The amounts retained for failure of the Contractor to conform to the requirements of this section will be released for payment on the next monthly estimate for partial payment following the date that a Water Pollution Control Program has been implemented and maintained, and water pollution is adequately controlled as determined by the Engineer.

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10-1.05 NON-STORM WATER DISCHARGES.

Non-storm water discharges shall conform to the requirements in Section 7-1.01G, "Water Pollution" of the Standard Specifications and these special provisions

Conformance with the requirements of this section shall in no way relieve the Contractor from the Contractor's responsibilities, as provided in Section 7-1.11, "Preservation of Property," and Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

Pile Dewater.-- Suspended solids shall be removed during the dewatering operation for piles, as specified in these special provisions.

Suspended solids shall be removed to the extent that visible, floating products are not apparent within the discharge. Also, the discharge shall be of a visible purity such that turbidity is not greater than 10 percent beyond the natural background turbidity measured in NTU, and that apparent color beyond the natural background level are not apparent within the receiving water body. The point of effluent discharge shall not cause bottom sediments, aquatic vegetation, or surface soils to become dislodged or disturbed.

The Contractor shall graphically depict the dewatering process within the Storm Water Pollution Prevention Plan (SWPPP), as specified in "Water Pollution Control" of these special provisions. The graphic shall show both a sectional and plan view that details the removal techniques for suspended solids. The graphic shall define the flow path and placement of pipes, hoses, pumps, and other equipment used to convey the discharge. In addition, the contractor shall provide a sketch that depicts the general position of the apparatus relative to the pile(s) undergoing dewatering and the point of effluent discharge.

The Contractor shall describe the pile dewatering apparatus within the appropriate sections of the SWPPP. The description shall include, but not be limited to, an estimate of the discharge volume, flow rate, and frequency; location of discharge; and the inspection and monitoring procedures related to the discharge.

The Contractor shall conduct a daily inspection of the dewatering equipment, when in use, to ensure that all components are functional and routinely maintained to prevent leakage prior to removal of suspended solids. Any component of the apparatus that is found to be damaged or to affect the performance of the apparatus shall be either immediately repaired or replaced.

The Contractor shall visually monitor both the discharge and the receiving water body. The observations made during monitoring shall include the color, size of affected area, presence of suspended material, presence of water fowl or aquatic wildlife, wind direction and velocity, tidal condition, atmospheric condition, time, and date. In addition, the Contractor shall supplement the observations with photographs. The contractor shall conduct monitoring, at a minimum, one hour prior to discharge, during the first ten minutes of initiating discharge, every four hours during discharge, and upon cessation of discharge. The observations shall be recorded daily in a tabular format known as the monitoring report provided within the Conceptual Storm Water Pollution Prevention Plan, as described within "Water Pollution Control" of these special provisions. The monitoring report, including photographs, shall be provided weekly to the Engineer, or as directed by the Engineer.

Observations which indicate that the discharge is of a visible purity such that turbidity is greater than 10 percent beyond the natural background turbidity measured in NTU, or that apparent color is beyond the natural background level are to be immediately reported to the Engineer. The discharge activity shall immediately cease, so that corrective actions are undertaken to repair, modify, or replace the equipment. The commencement of discharge activities shall be allowed upon approval by the Engineer.

Stockpile Dewater.-- The Contractor shall prevent the flow of water, including ground water, surface runoff and tidal flow from entering any temporary stockpiles on land.

The Contractor shall depict and describe within an amendment to the Storm Water Pollution Prevention Plan (SWPPP), as specified in "Water Pollution Control" of these special provisions, the methods and measures that will be used to dewater the temporary stockpiles, to seal the sides and bottom of the temporary stockpiles and to prevent the flow of water into the stockpiles. The time to be provided for the Engineer's review and approval of the amendment shall be 10 working days prior to beginning temporary stockpile operations. Operations producing water will not be permitted until the plan has been approved by the Engineer.

All water removal from temporary stockpiles shall be handled in accordance with National Pollutant Discharge Elimination System (NPDES) Permit CAS029998, issued by the San Francisco Bay Regional Water Quality Control Board. Copies of the permit and its amendments will be available for inspection and purchase at the Department of Transportation, Duty Senior's Desk, 111 Grand Avenue, Oakland, California, (510) 286-5209. In addition, materials information entitled "San Mateo-Hayward Bridge Site Water" will be available for review at the same location.

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The Contractor is responsible for all work, records, reports, and costs involved in handling the water in accordance with the NPDES permit. The Contractor shall supply all analytical data, dewatering volume records, and written requests for discharge to the Engineer for approval prior to discharging any water. The Engineer shall have up to 7 calendar days for review and approval of discharge. Water that does not meet discharge permit requirements shall not be discharged on the site or to the storm drainage or to the sanitary sewer systems. The Contractor is responsible for either treating such water to meet the permit requirements for discharge or hauling such water off site to an appropriately licensed liquid disposal facility. Penalties assessed against the State for permit non-compliance by the Contractor will be borne by the Contractor. Such penalties will be deducted from the monthly progress payment.

However, nothing in this section, "Non-Storm Water Discharges," will be construed as relieving the Contractor of full responsibility of complying with Section 7-1.16 "Contractor's Responsibility for the Work and Materials" of the Standard Specifications.

Concrete Wastes.-- The control and disposal of water, abrasives, and residues associated with concrete wastes shall be described within the SWPPP, as specified in "Water Pollution Control" of these special provisions. The SWPPP shall, at a minimum, depict and describe the procedural and structural methods of detaining, collecting, and disposing of all concrete wastes. Sufficient redundancy shall be incorporated into the procedural and structural methods such that concrete wastes are not conveyed into or become present in drainage systems, San Francisco Bay, or other water bodies.

Measurement and Payment.-- Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work affected by this section and no additional compensation will be allowed therefor.

10-1.08 PROGRESS SCHEDULE (CRITICAL PATH)

Progress schedules will be required for this contract. Within 30 working days of the approval of the contract the Contractor shall submit to the Engineer a baseline progress schedule. The baseline progress schedule shall utilize a Critical Path Network diagram that clearly shows sequence and duration of major construction activities, labor and equipment resource allocations for every activity for both the Contractor and subcontractor, interim milestones or completion dates required in the contract, and the controlling operation or operations.

The baseline CPM progress schedule submitted by the Contractor shall have no more than 150 activities unless permitted otherwise by the Engineer, and shall show all major activities that define the critical path for significant portions of the work. Individual activities that are not significant in themselves and create a series of parallel paths shall be grouped within major activities, or combined to form a more general major activity. The actual number of activities in the CPM network shall, in the judgment of the Engineer, be sufficient to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts. All schedule submittals by the Contractor shall include 3 1/2" computer disks containing the updated CPM schedule data, including requested reports and graphics files.. Along with the network diagram the Contractor shall submit a tabular listing of the schedule activities, their dependency and precedence relationships, durations and performance sequence,early, late, and actual schedule dates, total floats, and resource allocation.

Major activities are defined as single activities or groups of activities that create a significant portion of the project due to location, related type of work, or common completion dates. Major activities shall have durations of not less than 5 nor more than 20 working days. Milestone or transitional activities may have durations of less than 5 days. Isolated major activities, concurrent or combined activities may have more than 20 working days when approved by the Engineer. A schedule will not be acceptable if it shows completion dates beyond the contract requirements for interim target dates, milestones or contract completion. The contract completion date shall be based on the working days designated in the contract and not on a proposed early completion shown in the schedule. The baseline schedule shall not attribute either negative float or lag to any activity.

The schedule submitted shall meet in all respects the time and order of work requirements of the contract. The work shall be executed in the sequence indicated in the accepted baseline schedule and subsequent accepted updates and revisions. The Contractor shall be responsible for assuring that all work sequences are logical and the network shows a coordinated plan for complete performance of the work. Failure of the Contractor to include any element of work required for the performance of the contract in the network shall not relieve the Contractor from completing all work within the time limit specified for completion of the contract. If the Contractor fails to define any element of work, activity or logic, and the omission or error is discovered by either the Contractor or the Engineer, it shall be corrected by the Contractor at the next scheduled monthly update or revision.

Once the Engineer accepts a CPM progress schedule, the Contractor shall not artificially improve his progress or change the quantity of float in any part of the schedule by adding or deleting activities, revising schedule logic restraints or changing planned activity durations. The Contractor may improve his progress by performing sequential activities concurrently or by performing activities more quickly than planned. In the case of multiple critical paths, float generated by early completion of one or a sequence of activities will be considered in determining if that sequence of activities remains on the critical path.

The Contractor shall allow 15 days for the Engineer to review and accept, reject or return for correction or clarification any schedule submitted.

The Contractor shall submit a revised CPM network within 15 days when requested by the Engineer, or when there is significant change in the Contractor's operations that will affect the critical path. These revisions shall be in addition to and separate from the regular required monthly updates.

An update is defined as a regular monthly review of the CPM schedule, as of the last monthly estimate, to incorporate actual progress to date by activity, any approved time adjustments and projected completion dates. A revision is defined as a change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences or durations. Float is defined as the amount of time between the early start date and late start date, or the early finish date and the late finish date, of any activity or group of activities in the network. Float shall not be considered as time for the exclusive use of or benefit of either the State or the Contractor. It shall be considered as a resource available to both parties and shall not be used to the financial detriment of either party.

On or before the first calendar day of each month, the Contractor shall meet with the Engineer to review contract progress. The Contractor shall submit to the Engineer at the monthly progress meeting both a written narrative report and an update of the CPM schedule**.** The report shall identify and discuss potential problem areas; current and anticipated delaying factors and their impact; actions taken or proposed; proposed changes in CPM schedule logic; out of sequence work; and any other topics related to job progress or scheduling. The Contractor shall update the most recent schedule to incorporate all current schedule information, including actual progress, approved adjustments of time and proposed changes in sequence and logic.

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Progress status shall be evaluated by the activities on the critical path at the time of updating. If the current updated CPM schedule indicates that the contract progress is 20 days or more behind the planned schedule, as determined by the Engineer, the Contractor shall submit to the Engineer a revised CPM schedule and an explanation of corrective action taken or proposed by the Contractor to complete the project within the time specified. Negative float indicates the activities are behind schedule and positive float indicates status ahead of schedule.

If the Contractor or the Engineer considers that an approved or anticipated change will impact the critical path or contract progress, a schedule analysis and revised CPM schedule supporting the proposed adjustment of time shall be submitted to the Engineer for discussion, review and acceptance. All changes shall be shown as separate activities or groups of activities and entered into the relevant part of the approved network schedule current at the time of change. If such a revision is not available, the Engineer may, at his option, construct and utilize the project as-built schedule, or other recognized method of delay impact analysis. In case of a deductive change reducing the quantity of work to be done under affected activities, the estimated duration of these activities shall be adjusted to reflect the reduced quantities of work. The Contractor shall submit a written report, describing the adjustments and reasons for the adjustments, and the impact of the changes.

The Engineer may use these and other information in evaluating the effect of the changes, delays, or time savings on the critical path and the accepted schedule current at the time to determine the applicable adjustment of time, if any, to any target date or completion date due to the changes, delays, or time savings.

Changes or delays that do not affect the controlling operation or operations on the critical path will not be considered as the basis for a time adjustment. Changes or delays that do affect the controlling operation or operations on the critical path will be considered in granting an extension of time for completion of the contract only if the total float is absorbed by the delay.

The Contractor shall provide for the State's exclusive possession and use a complete computer system specifically capable of creating, storing, updated and producing CPM schedules. It is the Contractor’s responsibility to maintain and repair the computer system. The Engineer may use the furnished computer hardware, software and instruction manuals for any purposes relating to the subject project. Before delivery and setup of the computer system, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. The minimum computer system to be furnished shall include the following:

1. Complete computersystem, including keyboard, mouse and color SVGA monitor, using a PENTIUM 200 MHZ micro processor chip, or equivalent or better. .
2. Computer operating system software, compatible with the selected processing unit, of Microsoft Windows 95, or later, with a minimum of 32megabytes of random access memory (RAM) or MACINTOSH 7.5.3, or later, system with32 megabytes of random access memory (RAM).
3. A 2.5 gigabyte hard disk drive and a 1.44 megabyte, 3 1/2” floppy disk drive. ethernet card, 8X CD ROM,
4. A laser printer compatible with the selected system capable of printing fully legible, time-scaled charts, network diagrams and reports.
5. A plotter compatible with the selected system capable of plotting, in color, fully legible, time-scaled E-size (36” by 48”) logic diagrams, and bar charts.
6. CPM software, compatible with the hardware provided.”

The computer hardware and software furnished by the Contractor shall be compatible with that used for the production of the CPM progress schedule required by the contract, including instruction manuals and other documentation normally provided with the software.

The Contractor shall furnish, install, set up, maintain and repair the computer hardware and software ready for use at a location determined by the Engineer. The hardware and software shall be installed and ready for use by the first submission of the progress schedule. The Contractor shall provide three sessions of 8 hour formal training for the Engineer in the use of the hardware and software to include schedule analysis, reporting, resource and cost allocation.

All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. When contract claims involving contract progress are pending, computer hardware or software shall not be removed until the final estimate has been submitted to the Contractor.

Progress schedule (critical path) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path) shall include full compensation for furnishing all labor, materials (including computer hardware and software), tools, equipment, and incidentals; and for doing all the work involved in preparing, furnishing, updating, revising CPM progress schedules; maintaining and repairing the computer hardware; and providing training the Engineer in the use of the computer hardware and software, as specified in these special provisions, and as directed by the Engineer. Payments for progress schedule (critical path) will be made as follows:

Five percent work completed and an accepted baseline, then 50 percent payment for progress schedule (critical path) will be made.
Twenty-five percent work completed and an accepted baseline, then 75 percent payment for progress schedule (critical path) will be made.
Fifty percent work completed and an accepted baseline, then 90 percent payment for progress schedule (critical path) will be made.
One hundred percent work completed, then 100 percent payment for progress schedule (critical path) will be made.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period, in which the Contractor fails to submit a baseline, revised or updated CPM schedule, conforming to the requirements of this section, as determined by the Engineer. Thereafter**;** on subsequent successive estimate periods the percentage the Department will retain will be increased at 25 percent per estimate period in which acceptable CPM progress schedules have not been submitted to the Engineer. Retentions for failure to submit acceptable CPM progress schedules shall be additional to all other retentions provided for in the contract. The retention for failure to submit acceptable CPM progress schedules will be released for payment on the next monthly estimate for partial payment following the date that acceptable CPM progress schedules are submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of progress schedule (critical path). Adjustments in compensation for progress schedule will not be made for any increased or decreased work ordered by the Engineer in furnishing progress schedules.

SCHEDULING CLOSURES.--On or before 12:00 p. m. on Wednesday of each week the Contractor shall furnish to the Engineer a schedule of all proposed lane and ramp closures for the following Monday. Any request for changes to the weekly schedule shall be submitted to the Engineer for approval at least 24 hours prior to the proposed change or as required by the Engineer.

All requests must indicate the closure date(s), time(s) of closure, county, route, direction, post mile, description of facility closed (lane, on/off-ramp, connector ramp, collector road, shoulder, median, bridge, etc.).

Approval or denial of lane closure requests will be determined by 10:00 a.m. on the Friday preceding the week of the requested work. Approval does not allow closures other than the date, time, and location indicated. For closures that are postponed due to weather or other unforeseen circumstances, previously approved requests may be submitted for consideration of rescheduling during the week and will be approved only after a case-by-case review by the Engineer.

Request for approval for unforeseen lane closures may be submitted at any time, but immediate review/approval cannot be guaranteed. Those conflicting with previously approved closures will be denied. For critical unforeseen lane closure requests that must be responded to immediately, the Engineer shall be immediately contacted for timely resolution.

10-1.16H TEMPORARY SUPPORTS

Temporary supports for existing structures during bridge removal and retrofit work shall be designed, furnished, constructed, monitored, maintained and removed in accordance with the requirements of these special provisions.

Attention is directed to the section, "Jacking Superstructure," of these special provisions.

Approval by the Engineer of the temporary support working drawings or temporary support inspection performed by the Engineer will in no way relieve the Contractor of full responsibility for the temporary supports.

TEMPORARY SUPPORT DESIGN AND DRAWINGS.--The Contractor shall submit to the Engineer working drawings and design calculations for the temporary supports. Such drawings and design calculations shall be signed by an engineer who is registered as a Civil Engineer in the State of California. The temporary support working drawings and design calculations shall conform to the requirements in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The number of sets of drawings and design calculations and times for review for temporary supports shall be the same as specified for falsework working drawings in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications.

In addition to the requirements in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications, the following requirements shall apply:

The time to be provided for the Engineer's review of the working drawings for specific structures, or portions thereof, shall be as follows:

Structure or Portion of Structure	Review Time - Weeks
Drop-in span near pier 38	5

Working drawings for any part of the temporary supports shall include stress sheets, anchor bolt layouts, shop details, erection and removal plans.

The temporary support working drawings shall include descriptions and values of all loads, including construction equipment loads, descriptions of equipment to be used, complete details and calculations for supporting the existing structure, and descriptions of the displacement monitoring system. The displacement monitoring system shall include equipment to be used, location of control points, method and schedule of taking measurements, and shall also include provisions to jack the structure should settlement occur in the temporary supports.

When footing type foundations are to be used, the Contractor shall determine the bearing value of the soil and shall show the values assumed in the design of the temporary supports on the temporary support drawings. Anticipated temporary support foundation settlement shall be shown on the temporary support drawings.

When pile type foundations are to be used, the temporary support drawings shall show the maximum horizontal distance that the top of a temporary support pile may be pulled in order to position it under its cap. The temporary support plans shall also show the maximum allowed deviation of the top of the pile, in its final position, from a vertical line through the point of fixity of the pile.

The Contractor may use the permanent piles as part of the temporary support foundation. Permanent piles shall not be moved or adjusted from the locations shown on the plans. Any use of the permanent piles and the loads imposed on them shall be shown on the temporary support drawings. Should the Contractor propose to provide piles longer than required for the work in order to support the temporary supports above the elevation of the top of the footing and later cut off the piles at their final elevation, shear devices adequate to transfer all pile reactions into the footing will be required.

Temporary support footings shall be designed to carry the load imposed upon them without exceeding the estimated soil bearing values and anticipated settlements.

Where temporary supports are supported on the existing sub-structure, the temporary supports shall conform to the following:

Temporary supports shall bear directly on bent caps or shall bear on support sills which are structurally adequate to transmit the load to the cap without over stressing any member of the new or existing structure. Temporary supports shall not induce permanent forces into the completed structure or produce cracking.

Temporary supports shall be in place beneath the existing structure where temporary support loads are imposed upon the existing structure. Such temporary supports shall be designed and constructed to support all loads imposed upon the existing structure and any other loads imposed as a result of the proposed construction operations.

Bracing shall be provided, as necessary, to withstand all imposed loads during erection and removal of any temporary supports. The temporary support drawings shall show provisions for such temporary bracing or methods to be used to conform to these requirements during each phase of erection and removal. Wind loads shall be included in the design of such bracing or methods. Wind loads shall conform to the applicable paragraphs in Section 51-1.06A(1), "Design Loads," of the Standard Specifications.

The temporary support design calculations shall show a summary of computed stresses in the (1) temporary supports, (2) connections between temporary supports and the existing structure and (3) existing load supporting members. The computed stresses shall include the effect of the jacking sequence. The temporary support design calculations shall also include a lateral stiffness assessment of the temporary support system.

The design of temporary supports will not be approved unless it is based on the use of loads and conditions which are no less severe than those described in the Section, "Temporary Support Design Criteria," of these special provisions and on the use of allowable stresses which are no greater than those described in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications.

If falsework loads are imposed on temporary supports, the temporary supports shall also satisfy the deflection criteria described in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications.

TEMPORARY SUPPORT DESIGN CRITERIA.--The vertical design loads shall be adjusted for the weight of temporary supports and jacks, construction equipment loads and additional loads imposed by the Contractor's operations. The construction equipment loads shall be the actual weight of the construction equipment but in no case shall be less than 20 pounds per square foot of deck surface area of the frame involved. A frame is defined as the portion of the bridge between expansion joints.

The fifth paragraph of Section 51-1.06A(1), "Design Loads," of the Standard Specifications is amended to read:

The minimum horizontal load to be allowed for wind on heavy-duty steel shoring or steel pipe column falsework having a vertical load carrying capacity exceeding 30 kips per leg or column shall be the sum of the products of the wind impact area, shape factor, and the applicable wind pressure value for each height zone. The wind impact area is the total projected area of all the elements in the tower face or falsework bent normal to the direction of the applied wind. The shape factor shall be taken as 2.2 for heavy-duty shoring and 1.0 for pipe column falsework. Wind pressure values shall be determined from the following table:

Height Zone (Feet above MSL)	Wind Pressure Value	
	Shores or Columns Adjacent to Traffic	At Other Locations
0 to 30	20 psf	15 psf
30 to 50	25 psf	20 psf
50 to 100	30 psf	25 psf
Over 100	35 psf	30 psf

The first 2 sentences of the sixth paragraph of Section 51-1.06A(1), "Design Loads," of the Standard Specifications are amended to read:

The minimum horizontal load to be allowed for wind on all other types of falsework, including falsework supported on heavy-duty shoring or pipe column falsework, shall be the sum of the products of the wind impact area and the applicable wind pressure value for each height zone. The wind impact area is the gross projected area of the falsework and any unrestrained portion of the permanent structure, excluding the areas between falsework bents or towers where diagonal bracing is not used.

The second entry under "Timber" in the second paragraph of Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications is amended to read:

Compression parallel to the grain .... $\frac{480{,}000}{(L/d)^2}$ psi, but not to exceed 1,600 psi.

The last paragraph under "Timber" in the second paragraph of Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications is amended to read:

Timber connections shall be designed in accordance with the procedures, stresses and loads permitted in the Falsework Manual as published by the Department of Transportation, Division of Structures, Office of Structure Construction.

The existing structure shall be mechanically connected to the temporary supports. The temporary supports shall be mechanically connected to their foundations. The mechanical connections shall be capable of resisting the lateral temporary support design forces. Friction forces developed between the existing structure and temporary supports shall not be used to reduce the lateral forces and shall not be considered as an effective mechanical connection. The mechanical connections shall be designed to tolerate adjustments to the temporary support frame throughout the use of the temporary supports.

TEMPORARY SUPPORT CONSTRUCTION.-- Attention is directed to Paragraphs 1 through 7 of Section 51-1.06B, "Falsework Construction," of the Standard Specifications. All reference to falsework in these paragraphs shall also apply to temporary supports.

Welding, welder qualification, and inspection of welding for all steel members shall conform to the requirements of ANSI/AASHTO/AWS D1.5.

Prior to proceeding with bridge removal, an engineer for the Contractor who is registered as a Civil Engineer in the State of California shall inspect the temporary supports, including the displacement monitoring systems, for conformity with the working drawings. The Contractor's registered engineer shall certify in writing that the temporary supports, including the displacement monitoring systems, substantially conform to the working drawings, and that the material and workmanship are satisfactory for the purpose intended. A copy of this certification shall be available at the site of the work at all times.

Temporary supports supporting the existing drop-in spans from pier 38 to the hinge at bent 285 shall uniformly support the length of the existing girders prior to any corresponding girder modification. A minimum of 2 adjacent deck units shall have temporary supports in place before any corresponding concrete removal or coring is performed.

The Contractor's registered engineer shall be present at the bridge site at all times when adjustments are in progress and when bridge removal operations are in progress. The Contractor's registered engineer shall inspect the removal operation and report in writing on a daily basis the progress of the operation and the status of the remaining structure. A copy of the daily report shall be available at the site of the work at all times. Should an unplanned event occur, the Contractor's registered engineer shall submit immediately to the Engineer for approval, the procedure or proposed operation to correct or remedy the occurrence.

The Contractor shall perform an initial survey as part of the displacement monitoring system to record the location of the existing structure prior to the commencement of any work. Two copies of the survey shall be signed by an engineer, who is registered as a Civil Engineer in the State of California, and submitted to the Engineer.

Vandal-resistant displacement monitoring equipment shall be provided and maintained. Vertical and horizontal displacements of the temporary supports and the existing structure shall be monitored continuously and shall be accurately measured and recorded at least weekly during removal and reconstruction work. As a minimum, elevations shall be taken prior to the start of removal operations, after bridge removal is complete, before connecting the retrofitted superstructure to the substructure, and after the temporary supports have been removed. Control points at each location shall be located at the quarter points of each existing girder of the superstructure. The records of vertical and horizontal displacement shall be signed by an engineer who is registered as a Civil Engineer in the State of California and available to the Engineer at the jobsite during normal working hours, and a copy of the record shall be delivered to the Engineer at the completion of releasing the temporary supports.

Should unanticipated displacements, cracking or other damage occur, the construction shall be discontinued until corrective measures satisfactory to the Engineer are performed. Damage to the structure as a result of the Contractor's operations shall be repaired by the Contractor according to the requirements in Section 7-1.11, "Preservation of Property," of the Standard Specifications.

Following completion of the reconstruction, the monitored control points shall not deviate from the vertical position by more than 1/4 inch from the initial survey elevations or the elevations as modified by the Engineer.

REMOVING TEMPORARY SUPPORTS.--Attention is directed to Section 51-1.06C, "Removing Falsework," of the Standard Specifications. All references to falsework in this section shall also apply to temporary supports, except that when public traffic is carried on the structure on temporary supports, paragraph 8 is amended to read:

No temporary supports shall be released until the supported concrete and pressure grout has attained 100 percent of the specified strength.

Attachments shall be removed from the existing structure and concrete surfaces restored to original conditions, except where permanent alterations are shown on the plans.

Section 51-1.06C, "Removing Falsework," of the Standard Specifications is amended by adding the following after the seventh paragraph:

Unless otherwise specified, removing falsework supporting any span of structural members subject to bending, shall conform to the requirements for removing falsework supporting any span of a simple span bridge.

Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications is amended by adding the following after the first paragraph:

The falsework drawings shall include details of the falsework removal operations showing the methods and sequences of removal and equipment to be used.

ADDED PER ADDENDUM NO. 1 DATED JUNE 26, 1997

The seventeenth paragraph of Section 51-1.06A is amended to read:

Temporary bracing shall be provided, as necessary, to withstand all imposed loads during erection, construction and removal of any falsework. The falsework drawings shall show provisions for such temporary bracing or methods to be used to conform to this requirement during each phase of erection and removal. Wind loads shall be included in the design of such bracing or methods.

The temporary supports shall remain in place for 30 days after the entire girder modification and hinge removal is completed at all deck units, all mechanical connections of the temporary supports to the existing structure have been released, and all jacks have been released, to facilitate monitoring the integrity of the existing girders. A uniform distance of 3/4 inch between the temporary supports and the existing girders shall be established at the beginning of the monitoring period. The temporary supports shall remain in place beyond the 30 days, as directed by the Engineer. Increases to the time period that the temporary supports are to remain in place will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

PAYMENT.--The contract lump sum price paid for temporary supports shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in designing, constructing, maintaining, and removing the temporary supports, including monitoring displacements, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

ADDED PER ADDENDUM NO. 1 DATED JUNE 26, 1997

10-1.18B MATERIAL WITH AERIALLY DEPOSITED LEAD

Attention is directed to "Aerially Deposited Lead, General" elsewhere in these special provisions.

Material excavated from areas containing aerially deposited lead shall be used as backfill as needed. Excess material shall be disposed of at a properly permitted facility. All material or dirt on the exteriors of transport vehicles shall be removed and placed into the current transport vehicle prior to the vehicle leaving the project limits. All material placed into the transport vehicles shall be securely covered prior to traveling on public roads. The Contractor shall be responsible for costs due to spillage of the material during transport.

Full compensation for conforming to the requirements of this section involving materials containing aerially deposited lead, except as otherwise specifically provided in these special provisions, shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

10-1.18C DREDGING

All excavation involved with the removal and disposal of the bay sediment material from the open end of the steel shells shall be considered dredging under the terms of the various permits obtained by the Department. Attention is directed to "Permits and Licenses," "Contaminated Material, General," "Non-Storm Water Discharge," "Water Pollution Control," "Piling," and "Contaminated Material" of these special provisions.

The Contractor shall provide construction access to accomplish the work without dredging. Dredging will not be allowed to provide barge or equipment access to the various sites.

Dredging shall be completed in accordance with the methods for Cleaning Out Steel Shells. Unless otherwise authorized in writing, all dredging shall be performed in the presence of the Engineer

Dredging will be limited to the locations specified in these special provisions, and as shown on the plans.

Dredging shall be in accordance with the provisions of the various permits obtained by the Department. All dredged material shall be disposed of according to the permit requirements and these special provisions.

Dredging Plan: Prior to beginning any dredging work, the Contractor shall submit a dredging plan as provided in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications for approval by the Engineer. Dredging shall not commence until all comments have been answered. The plan shall show order of dredging, barge anchoring locations, description of barge overflow operations, description of slurry operations, environmental pollution control measures, instrumentation used, coordinates and land elevations of all control points for electronic positioning system and Mean Sea Level (MSL) determination, estimated daily dredge advances, quality control procedures, anticipated problem areas of project involving poor access due to boat traffic congestion, boat docking, and procedures to assure that dredging will proceed within the contract limits. The quality control information shall include:

1) A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the contractor quality control staff shall conduct the inspections for all aspects of the work specified and shall report to the Project Manager, or someone of higher authority, in the Contractor’s organization.

2) The name, qualifications, duties, responsibilities and authorities of each person assigned a quality control function.

3) A copy of the letter to the Contractor’s Quality Control (CQC) manager signed by an authorizing official of the firm, which describes the responsibilities and delegates the authorities of the CQC manager shall be furnished and shall be countersigned by the CQC manager acknowledging receipt of responsibilities and duties.

4) Reporting procedures and methods used to obtain information for quality control forms, including the submittal of displacement and capacity charts for all scows.

REVISED PER ADDENDUM NO. 1 DATED JUNE 26, 1997

The dredging plan shall be updated on a weekly basis to allow notification to harbor and boat owners of dredge progress. The dredging plan shall include notices, schedules, plans, and controls needed to complete all the required dredging and disposal of material excavated from the Bay.

Overflow: No overflow of dredged material or water will be allowed from the receiving barges, dump scows, or any other transport receptacle during the dredging operations. Overflow will only be allowed if the Contractor includes provisions and operations acceptable to the Regional Water Quality Control Board and is approved in the Storm Water Pollution Prevention Plan prepared by the Contractor, as approved by the Engineer.

During transport to the disposal sites, water and dredged material shall not be permitted to overflow, spill, or leak out of barges or dump scows.

Monitoring of overflow time and leakage shall be as specified for quality control of dredging in these special provisions. The Contractor shall record draft of hull for each scow load as specified under quality control.

In the event the Contractor chooses to fill a receiving barge or dump scow, the receiving vessel shall be located in an approved anchor site in accordance with Section 5-1.22, "Relations With United States Coast Guard," of these special provisions. The Contractor shall be required to perform both a pre-dredge and a post-survey of the anchor site by means of an independent surveyor and the Contractor shall be required to remove any shoals attributed to his operation at no additional cost to the State. Surveys shall be in compliance with the requirements for “Hydrographic Surveys” elsewhere in these special provisions.

Control and Monitoring Surveys: A short to medium range Electronic Positioning System (EPS) shall be provided on all vessels involved in dredging operations. The EPS shall be established, operated and maintained by the Contractor during the period of the contract when dredging work is actively underway. The EPS using range-range methods shall display and record the vessel’s location continuously during dredging and transport for disposal.

The EPS system shall be similar or equal in design, performance, accuracy, operating characteristics, and frequency to those identified in the following technical reference, which is available for purchase at the listed source, or which may be reviewed at the Construction-Operations Division, San Francisco District Office, 333 Market Street, San Francisco, California.

“Hydrographic Surveying”
Department of the Army
Engineering Manual No. 1110-2-1003
28 February 1991
USACE Publications Depot
2803 52nd Avenue
Hyattsville, MD 20781-1102

The Contractor shall be responsible for establishing the horizontal control to locate active and/or passive shore-based EPS transmitter/receiver devices. All control shall meet Third Order, Class I, accuracy standards as defined (and referenced) under chapter 2 of the Army Corps of Engineers Manual “ Hydrographic Surveying”. The Contractor shall obtain all right-of-entry permits and/or leases as required to operate and maintain shore-based electronic equipment on public/private property at no additional cost to the State.

EPS calibration techniques shall conform to standard hydrographic surveying practice consistent with minimization of systematic errors inherent to and consistent with the selected EPS system as specified under Chapter 6 of the Army Corps of Engineers manual “Hydrographic Surveying”. The Contractor shall be responsible for accurate and reliable EPS calibration for the duration of this contract.

Transporting and Upland Disposal: The Contractor shall transport and dispose of the dredged material in accordance with these special provisions. Attention is directed to "Contaminated Material, General", "Water Pollution Control," "Contaminated Material", and "Site Investigation" of these special provisions and the conditions of the various permits obtained by the State for this contract.

During transport to the disposal sites, water and dredged material shall not be permitted to overflow, spill, or leak out of the barges or dump scows. The maximum tow speed shall be 6 knots for loaded barges.

REVISED PER ADDENDUM NO. 1 DATED JUNE 26, 1997

A complete description of the Contractor's plan for disposal, procedures used and schedules shall be defined in the dredging plan to the satisfaction of the Engineer.

Overflow and Leakage Monitoring Requirements--The Contractor shall furnish a diagram of the location of all overflow weirs for the barges and dump scows indicating the initial elevation of each weir relative to hopper bin curb height. Each change in elevation of a weir during the dredging work shall be indicated on the diagram. For barge overflow, where allowed, the Contractor shall furnish a diagram of the location and elevation of the overflow.

Barges or dump scows having more than 10% loss in draft while transporting material to the disposal site shall be recorded on the daily quality control report and shall not be used until repaired.

MEASUREMENT AND PAYMENT-- Full compensation for preparing dredging plan, control and monitoring surveys, transporting and disposing of the dredged material, and monitoring of overflow and leakage in accordance with the standard specifications and these special provisions shall be considered included in the contract price paid for drive pile and no additional compensation will be allowed therefor.

ENGINEER'S ESTIMATE

04-043624

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	010890	ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM	LS	LUMP SUM	LUMP SUM	
2	010891	ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM DATA DELIVERY	LS	LUMP SUM	LUMP SUM	
3	070010	PROGRESS SCHEDULE (CRITICAL PATH)	LS	LUMP SUM	LUMP SUM	
4	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM	LUMP SUM	
5	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
6	120165	CHANNELIZER (SURFACE MOUNTED)	EA	7		
7	120166	CHANNELIZER (SURFACE MOUNTED) (LEFT IN PLACE)	EA	7		
8	150722	REMOVE PAVEMENT MARKER	EA	28		
9	150730	REMOVE CHANNELIZERS	EA	7		
10	150870	REMOVE CONCRETE DECK SURFACE	SQFT	1,740		
11	153225	PREPARE CONCRETE BRIDGE DECK SURFACE	SQFT	1,740		
12	157560	BRIDGE REMOVAL (PORTION)	LS	LUMP SUM	LUMP SUM	
13	046367	JACKING SUPERSTRUCTURE	LS	LUMP SUM	LUMP SUM	
14	074028	WATER POLLUTION CONTROL	LS	LUMP SUM	LUMP SUM	
15	(BLANK)					
16	010952	SITE INVESTIGATION	LS	LUMP SUM	LUMP SUM	
17	203037	STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM	LUMP SUM	
18	495133	FURNISH 36" CAST-IN-STEEL SHELL CONCRETE PILING	LF	2,027		
19 (S)	495134	DRIVE 36" CAST-IN-STEEL SHELL CONCRETE PILE	EA	20		
20 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	CY	75		

REVISED PER ADDENDUM NO. 1 DATED JUNE 26, 1997

ENGINEER'S ESTIMATE

04-043624

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	511106	DRILL AND BOND DOWEL	LF	140		
22	515041	FURNISH POLYESTER CONCRETE OVERLAY	CF	550		
23 (F)	515042	PLACE POLYESTER CONCRETE OVERLAY	SQFT	3,350		
24 (S)	515060	CORE CONCRETE (1")	LF	69		
25 (S)	515062	CORE CONCRETE (3")	LF	16		
26 (S)	515160	CORE CONCRETE (1 1/2")	LF	40,400		
27 (S)	515060	CORE CONCRETE (1") AND PRESSURE GROUT	LF	330		
28 (S)	046743	CORE CONCRETE (1 1/2") AND PRESSURE GROUT	LF	190		
29 (S)	519081	JOINT SEAL (MR 1/2")	LF	83		
30 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	LB	129,200		
31 (S-F)	550203	FURNISH STRUCTURAL STEEL (BRIDGE)	LB	1,887,000		
32 (S-F)	550204	ERECT STRUCTURAL STEEL (BRIDGE)	LB	1,887,000		
33 (S-F)	046368	DECK PLATE ASSEMBLY	LB	62,600		
34 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	LB	328,600		
35	832003	METAL BEAM GUARD RAILING (WOOD POST)	LF	240		
36	839532	CABLE ANCHOR ASSEMBLY (BREAKAWAY, TYPE B)	EA	1		
37	839534	ANCHOR ASSEMBLY (BREAKAWAY, TYPE M)	EA	1		
38	839558	TERMINAL SECTION (TYPE M)	EA	1		
39	840504	4" THERMOPLASTIC TRAFFIC STRIPE	LF	200		
40	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	16		

REVISED PER ADDENDUM NO. 1 DATED JUNE 26, 1997

ENGINEER'S ESTIMATE

04-043624

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	850102	PAVEMENT MARKER (REFLECTIVE)	EA	12		
42 (S)	046369	INSTALL SEISMIC MONITORING CASING	LF	557		
43 (S)	010892	MODIFY ELECTRICAL AND COMMUNICATION SYSTEM	LS	LUMP SUM	LUMP SUM	
44 (S)	010893	SEISMIC MONITORING ELECTRICAL SYSTEM	LS	LUMP SUM	LUMP SUM	
45	(BLANK)					
46	046792	TEMPORARY SUPPORT	LS	LUMPSUM	LUMP SUM	
47	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____

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IMPORTANT

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CONTRACT EXECUTION
SPECIAL NOTICE

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Caltrans is streamlining our construction contract execution procedures. Copies of Addenda, Prevailing Wages, and the successful bidder's proposal will no longer be added to the booklets marked "O", "Contractor", and "Surety" sent to the contractor for contract execution. The Department anticipates implementing this change beginning with projects awarded May 5, 1997.

Do not return your original addenda or prevailing wages in your bid proposal. Those records should be retained for your own use.

The contract execution documents will be sent to the successful bidder in a booklet entitled "Execution of Contract". The successful bidder's item and total prices as interpreted by the Department and printed on a page(s) titled "Contract Proposal of Low Bidder" will be included in the contract rather than the Engineer's Estimate from the bidder's proposal. The Execution of Contract booklet will also contain the contract signature page and Payment and Performance Bond forms for execution.

Copies of the original Engineer's Estimate (bid item pages) and List of Subcontractors from the successful bidder's proposal will be attached to the notification of award letter. Original proposal booklets will be retained in the Caltrans Construction Files as has been our practice.

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IMPORTANT

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SEISMIC RETROFIT
INFORMAL BIDS CONTRACT
SPECIAL NOTICE

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The bidder's attention is directed to the following special requirements for this project concerning submission of MBE/WBE/DVBE information, award and execution of contract, and beginning of work:

Attention is directed to Sections 2-1.01, "General," and 2-1.02, "Minority Business Enterprise (MBE), Women Business Enterprise (WBE) and Disabled Veteran Business Enterprise (DVBE)" of the Special Provisions, regarding changes in listing of subcontractors and joint venture partners. The List of Subcontractors and "Caltrans Bidder MBE/WBE/DVBE Information" forms in the Proposal have also been revised.

Attention is also directed to Section 2-1.03, "MBE/WBE/DVBE Goals for this Project" of the Special Provisions. Contractors bidding on projects with MBE/WBE/DVBE goals may call the Department's Business Enterprise Program at (916) 227-9599 for program information and certification status. NEDA and Triaxial Management Services will no longer provide lists of potential subcontractors to contractors bidding on projects with MBE/WBE/DVBE goals.

First-tier subcontractors that will be used for meeting DBE goals must be listed in the "List of Subcontractors" form regardless of dollar amount of work to be performed. Second- and lower-tier subcontractors need not be listed on the "List of Subcontractors" form. Other, non-DBE subcontractors are to be listed on the "List of Subcontractors" form in accordance with the requirements in Section 2-1.054 of the Standard Specifications and the Special Provisions.

Identify second- and lower-tier MBE, WBE and DVBE subcontractors on the "Caltrans Bidder MBE/WBE/DVBE Information" form.

Subparagraph (d) and subparagraph (h) of Section 2-1.02 has been revised regarding joint venture partners.

MBE/WBE/DVBE information shall be submitted **with the bid proposal**. (See **Section 2-1.04** of the special provisions.) The evaluation of the effort to meet the MBE/WBE/DVBE goal will be based on the information provided with the bid proposal. If the goal was not met, Caltrans' determination of good faith effort will be based on the information provided with the bid, and the decision will be final. Bidders and all subcontractors listed in the MBE/WBE/DVBE Information shall be available, by phone, on the day following the bid opening.

The MBE/WBE/DVBE information shall include all MBE, WBE and DVBE partners.

It is anticipated that this contract will be awarded within **10 days after bid opening**.

If the Bidder submits cash or a cashier's check or a certified check as the form of bidder's security (see Section 2-1.07 of the Standard Specifications), the Bidder shall also include with the bid submittal a signed and notarized affidavit from an admitted surety insurer that contract bonds, as required by Section 3-1.02, "Contract Bonds," of the Standard Specifications, will be provided within the specified time for executing and returning the contract for approval.

If the bidder claims a mistake was made in his bid, the bidder shall give the Department written notice within 48-hours, not including Saturdays, Sundays and legal holidays, after the opening of bids of the alleged mistake in lieu of the 5 days specified in Section 2-1.095, "Relief of Bidders," in the Standard Specifications. (See Section 2-1.01 of the special provisions.) Caltrans' FAX number for submitting this information is (916)227-6282. Such information shall be submitted "Attention Office Engineer."

The contract shall be signed by the successful bidder and shall be received with contract bonds by the Office of Office Engineer within **4 days**, including Saturdays, Sundays and legal holidays, after the bidder has received notice that the contract has been awarded. (See Section 3 of the special provisions.)

If properly executed by the bidder, it is anticipated the contract will be approved within 24 hours of when the executed contract and contract bonds are received by the Department.

The Contractor shall begin work within 5 calendar days after receiving notice that the contract has been approved. The contract work shall be completed before the expiration of **400 WORKING DAYS** beginning at **12:01 a.m. on the FIRST WORKING DAY AFTER CONTRACT AWARD.** (See Section 4 of the special provisions.)

The following forms have been included at the end of the Proposal and Contract book to assist the successful bidder in early execution of the contract documents: Payment Bond, Performance Bond, Insurance, Vendor Data Record.

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CALIFORNIA COMPANY PREFERENCE SPECIAL NOTICE

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Attention is directed to "California Company Preference" of the Special Provisions and the California Company Preference form in the Proposal. A disclosure of bid preferences provided to the nonresident Contractor by the state or country of the nonresident Contractor's principal place of business is now required.

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IMPORTANT

SPECIAL NOTICE

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INCLUDE "MS #26" IN THE ADDRESS FOR ALL BID DOCUMENTS DIRECTED TO ROOM 0200 WHEN SPECIFIED IN THE NOTICE TO CONTRACTORS AND SPECIAL PROVISIONS, AS FOLLOWS:

DEPARTMENT OF TRANSPORTATION
1120 N STREET, ROOM 0200, MS #26,
SACRAMENTO CA 95814

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In order to ensure that mail deliveries will be processed in a timely manner by the Department of Transportation personnel, include MS #26, as indicated above, on all Bid Documents and other correspondence directed to Room 0200 at the Department of Transportation, 1120 N Street, Sacramento CA 95814.

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DISPUTES REVIEW BOARD
SPECIAL NOTICE

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The bidder's attention is directed to Section 5, containing specifications for "Disputes Review Board," of the Special Provisions, regarding establishing a Disputes Review Board (DRB) for the project. The Proposal and Contract Book also contains a copy of the Disputes Review Board Agreement to be executed should the DRB be established.

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CONTRACT NO. 04-043624

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

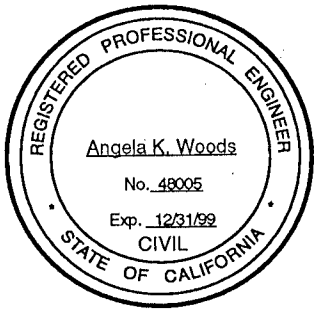
HIGHWAY

REGISTERED CIVIL ENGINEER

ELECTRICAL

REGISTERED ELECTRICAL ENGINEER

STRUCTURES



REGISTERED CIVIL ENGINEER

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DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS

THIS IS AN INFORMAL BIDS CONTRACT

CONTRACT NO. 04-043624

04-SM,Ala-92-R16.5/R18.8,R0.0/R2.6

Sealed proposals for the work shown on the plans entitled:

STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD ON THE SAN MATEO-HAYWARD BRIDGE

will be received at the Department of Transportation, 1120 N Street, Room 0200, MS #26, Sacramento, California 95814, until 2 o'clock p.m. on July 15, 1997, at which time they will be publicly opened and read in Room 0100 at the same address.

Proposal forms for this work are included in a separate book entitled:

STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROPOSAL AND CONTRACT FOR CONSTRUCTION ON STATE HIGHWAY IN SAN MATEO AND ALAMEDA COUNTIES IN FOSTER CITY AND HAYWARD ON THE SAN MATEO-HAYWARD BRIDGE

General work description: TOLL BRIDGE Seismic Retrofit OF SAN MATEO-HAYWARD BRIDGE

This project has a combined goal of 23 percent minority business enterprise (MBE), women business enterprise (WBE) and disabled veteran business enterprise (DVBE) participation.

No pre-bid meeting is scheduled for this project.

Bids are required for the entire work described herein.

At the time this contract is awarded, the Contractor shall possess either a Class A license or a combination of Class C licenses which constitutes a majority of the work.

The Contractor must also be properly licensed at the time the bid is submitted, except that on a joint venture bid a joint venture license may be obtained by a combination of licenses after bid opening but before award in accordance with Business and Professions Code, Section 7029.1.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

Preference will be granted to bidders properly certified as a "Small Business" as determined by the Department of General Services, Office of Small and Minority Business at the time of bid opening in accordance with the provisions in Section 2-1.05, "Small Business Preference," of the special provisions, and Section 1896 et seq, Title 2, California Code of Regulations. A form for requesting such preference is included with the bid documents. Applications for status as a "Small Business" must be submitted to the Department of General Services, Office of Small and Minority Business, 1531 "I" Street, Second Floor, Sacramento, CA 95814, Telephone No. (916) 322-5060.

A reciprocal preference will be granted to "California company" bidders in accordance with Section 6107 of the Public Contract Code. (See Sections 2 and 3 of the special provisions.) A form for indicating whether bidders are or are not a "California company" is included in the bid documents and is to be filled in and signed by all bidders.

Project plans, special provisions, and proposal forms for bidding this project can only be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, MS #26, Sacramento, California 95814, FAX No. (916) 654-7028, Telephone No. (916) 654-4490. Use FAX orders to expedite orders for project plans, special provisions and proposal forms. FAX orders must include credit card charge number, card expiration date and authorizing signature. Project plans, special provisions, and proposal forms may be seen at the above Department of Transportation office and at the offices of the District Directors of Transportation at Santa Ana, Oakland, and the district in which the work is situated. Standard Specifications and Standard Plans are available through the State of California, Department of Transportation, Publications Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815, Telephone No. (916) 445-3520.

Cross sections for this project are not available.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated. Future effective general prevailing wage rates which have been predetermined and are on file with the Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

DEPARTMENT OF TRANSPORTATION

Deputy Director Transportation Engineering

Dated June 2, 1997

LM

COPY OF ENGINEER'S ESTIMATE

(NOT TO BE USED FOR BIDDING PURPOSES)

04-043624

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	010890	MOBILE DAILY DIARY COMPUTER SYSTEM	LS	LUMP SUM	LUMP SUM	
2	010891	MOBILE DAILY DIARY SYSTEM DATA DELIVERY	LS	LUMP SUM	LUMP SUM	
3	070010	PROGRESS SCHEDULE (CRITICAL PATH)	LS	LUMP SUM	LUMP SUM	
4	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM	LUMP SUM	
5	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
6	120165	CHANNELIZER (SURFACE MOUNTED)	EA	7		
7	120166	CHANNELIZER (SURFACE MOUNTED) (LEFT IN PLACE)	EA	7		
8	150722	REMOVE PAVEMENT MARKER	EA	28		
9	150730	REMOVE CHANNELIZERS	EA	7		
10	150870	REMOVE CONCRETE DECK SURFACE	SQFT	1,740		
11	153225	PREPARE CONCRETE BRIDGE DECK SURFACE	SQFT	1,740		
12	157560	BRIDGE REMOVAL (PORTION)	LS	LUMP SUM	LUMP SUM	
13	046367	JACKING SUPERSTRUCTURE	LS	LUMP SUM	LUMP SUM	
14	074028	WATER POLLUTION CONTROL	LS	LUMP SUM	LUMP SUM	
15	010951	NON-STORM WATER DISCHARGE	LS	LUMP SUM	LUMP SUM	
16	010952	SITE INVESTIGATION	LS	LUMP SUM	LUMP SUM	
17	203037	STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM	LUMP SUM	
18	495133	FURNISH 36" CAST-IN-STEEL SHELL CONCRETE PILING	LF	2,027		
19 (S)	495134	DRIVE 36" CAST-IN-STEEL SHELL CONCRETE PILE	EA	20		
20 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	CY	75		

COPY OF ENGINEER'S ESTIMATE
(NOT TO BE USED FOR BIDDING PURPOSES)
04-043624

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	511106	DRILL AND BOND DOWEL	LF	140		
22	515041	FURNISH POLYESTER CONCRETE OVERLAY	CF	550		
23 (F)	515042	PLACE POLYESTER CONCRETE OVERLAY	SQFT	3,350		
24 (S)	515060	CORE CONCRETE (1")	LF	69		
25 (S)	515062	CORE CONCRETE (3")	LF	16		
26 (S)	515160	CORE CONCRETE (1 1/2")	LF	40,400		
27 (S)	515060	CORE CONCRETE (1") AND PRESSURE GROUT	LF	330		
28 (S)	046743	CORE CONCRETE (1 1/2") AND PRESSURE GROUT	LF	190		
29 (S)	519081	JOINT SEAL (MR 1/2")	LF	83		
30 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	LB	129,200		
31 (S-F)	550203	FURNISH STRUCTURAL STEEL (BRIDGE)	LB	1,878,000		
32 (S-F)	550204	ERECT STRUCTURAL STEEL (BRIDGE)	LB	1,878,000		
33 (S-F)	046368	DECK PLATE ASSEMBLY	LB	62,600		
34 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	LB	326,500		
35	832003	METAL BEAM GUARD RAILING (WOOD POST)	LF	240		
36	839532	CABLE ANCHOR ASSEMBLY (BREAKAWAY, TYPE B)	EA	1		
37	839534	ANCHOR ASSEMBLY (BREAKAWAY, TYPE M)	EA	1		
38	839558	TERMINAL SECTION (TYPE M)	EA	1		
39	840504	4" THERMOPLASTIC TRAFFIC STRIPE	LF	200		
40	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	16		

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	850102	PAVEMENT MARKER (REFLECTIVE)	EA	12		
42 (S)	046369	INSTALL SEISMIC MONITORING CASING	LF	557		
43 (S)	010892	MODIFY ELECTRICAL AND COMMUNICATION SYSTEM	LS	LUMP SUM	LUMP SUM	
44 (S)	010893	SEISMIC MONITORING ELECTRICAL SYSTEM	LS	LUMP SUM	LUMP SUM	
45	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS

Annexed to Contract No. 04-043624

SECTION 1. SPECIFICATIONS AND PLANS

The work embraced herein shall be done in accordance with the Standard Specifications dated July, 1992, and the Standard Plans dated July, 1992, of the Department of Transportation insofar as the same may apply and in accordance with the following special provisions.

In case of conflict between the Standard Specifications and these special provisions, the special provisions shall take precedence over and be used in lieu of such conflicting portions.

SECTION 2. PROPOSAL REQUIREMENTS AND CONDITIONS

2-1.01 GENERAL

The bidder's attention is directed to the provisions in Section 2, "Proposal Requirements and Conditions," of the Standard Specifications and these special provisions for the requirements and conditions which he must observe in the preparation of the proposal form and the submission of the bid.

In addition to the subcontractors required to be listed in accordance with Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications, each proposal shall have listed therein the name and address of each MBE, WBE and DVBE subcontractor to be used for credit in meeting the goals, and to whom the bidder proposes to directly subcontract portions of the work. The list of subcontractors shall also set forth the portion of work that will be done by each subcontractor listed. A sheet for listing the subcontractors is included in the Proposal.

The form of Bidder's Bond mentioned in the last paragraph in Section 2-1.07, "Proposal Guaranty," of the Standard Specifications will be found following the signature page of the Proposal.

If the Bidder submits cash or a cashier's check or a certified check as the form of bidder's security (See said Section 2-1.07 of the Standard Specifications), the Bidder shall also include with the bid submittal a signed and notarized affidavit from an admitted surety insurer that contract bonds, as required by Section 3-1.02, "Contract Bonds," of the Standard Specifications, will be provided within the time specified elsewhere in these special provisions for executing and returning the contract for approval.

In accordance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Noncollusion Affidavit.

If the bidder claims a mistake was made in his bid, the bidder shall give the Department written notice within 48-hours, not including Saturdays, Sundays and legal holidays, after the opening of bids of the alleged mistake, in lieu of the 5 days specified in Section 2-1.095, "Relief of Bidders," in the Standard Specifications. The notice of alleged mistake shall specify in detail how the mistake occurred.

2-1.02 MINORITY BUSINESS ENTERPRISE (MBE), WOMEN BUSINESS ENTERPRISE (WBE) AND DISABLED VETERAN BUSINESS ENTERPRISE (DVBE)

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish goals for Minority Business Enterprise (MBE), Women Business Enterprise (WBE) and Disabled Veterans Business Enterprise (DVBE) in contracts.

It is the policy of the Department that Minority Business Enterprise (MBE), Women Business Enterprise (WBE) and Disabled Veteran Business Enterprise (DVBE) shall have the maximum opportunity to participate in the performance of contracts financed solely with state funds. The Contractor shall ensure that MBEs, WBEs and DVBEs have the maximum opportunity to participate in the performance of this contract and shall take all necessary and reasonable steps for such assurance. The Contractor shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of subcontracts. Failure to carry out the requirements of this paragraph shall constitute a breach of contract and may result in termination of this contract or such other remedy the Department may deem appropriate.

Bidder's attention is directed to the following matters:

(a) "Minority Business Enterprise" means a business concern that meets all of the following criteria:

(1) The business is an individual proprietorship, partnership, corporation, or joint venture at least 51 percent owned by one or more minorities or, in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more minorities;

(2) A business whose management and daily operations are controlled by one or more minorities who own the business;

(3) A business concern with its home office located in the United States which is not a branch or subsidiary of a foreign corporation, firm, or other business.

(b) "Women Business Enterprise" means a business concern that meets all of the following criteria:

(1) The business is an individual proprietorship, partnership, corporation, or joint venture at least 51 percent owned by one or more women or, in the case of any business whose stock is publicly held, at least 51 percent of the stock is owned by one or more women;

(2) A business whose management and daily operations are controlled by one or more women who own the business;

(3) A business concern with its home office located in the United States which is not a branch or subsidiary of a foreign corporation, firm, or other business.

(c) "Disabled Veteran Business Enterprise" means a business concern certified by the Office of Small and Minority Business as meeting all of the following:

(1) A sole proprietorship owned by one or more disabled veterans, or in the case of a publicly owned business, at least 51 percent of its stock is owned by one or more disabled veterans; a subsidiary which is wholly owned by a parent corporation, but only if at least 51 percent of the voting stock of the parent corporation is owned by one or more disabled veterans: or a joint venture in which at least 51 percent of the joint venture's management and control and earnings are held by one or more disabled veterans;

(2) The management and control of the daily business operations are by one or more disabled veterans. The disabled veterans who exercise management and control are not required to be the same disabled veterans as the owners of the business concern;

(3) A sole proprietorship, corporation, or partnership with its home office located in the United States, which is not a branch or subsidiary of a foreign corporation, firm, or other business.

(d) "Minority" means a citizen or lawful permanent resident of the United States who is an ethnic person of color and who is: Black (a person having origins in any of the Black racial groups of Africa); Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish or Portuguese culture or origin regardless of race); Native American (an American Indian, Eskimo, Aleut, or Native Hawaiian); Pacific-Asian (a person whose origins are from Japan, China, Taiwan, Korea, Vietnam, Laos, Cambodia, the Philippines, Samoa, Guam, or the United States Trust Territories of the Pacific including the Northern Marianas); Asian-Indian (a person whose origins are from India, Pakistan, or Bangladesh);

(e) "Disabled Veteran" means a veteran of military, naval or air services of the United States with at least 10 percent service-connected disability who is a resident of the State of California;

(f) An MBE or WBE bidder, not bidding as a joint venture with a non-MBE or non-WBE, will be required to meet the MBE and WBE goals through subcontracting or material purchases or make good faith effort to do so;

(g) A DVBE bidder will be required to meet the DVBE goal by using other DVBEs;

(h) An MBE, WBE or DVBE may participate as a subcontractor, joint venture partner with a prime or subcontractor, or vendor of material or supplies;

(i) An MBE, WBE or DVBE joint venture partner must be responsible for specific contract items of work, or portions thereof. Responsibility means actually performing, managing and supervising the work with its own forces. The MBE, WBE or DVBE joint venture partner must share in the ownership, control, management responsibilities, risks and profits of the joint venture. The MBE or WBE joint venturer must submit the joint venture agreement, and California Department of Transportation Business Enterprise Program form entitled "Minority/Disadvantaged/Women Business Enterprise Joint Venture." This information must be submitted with the MBE/WBE/DVBE Information form required in "Section 2-1.04" elsewhere in these special provisions;

(j) An MBE, WBE or DVBE must perform a commercially useful function, i.e., must be responsible for the execution of a distinct element of the work and must carry out its responsibility by actually performing, managing and supervising the work;

(k) Credit for MBE, WBE and DVBE vendors of materials or supplies is limited to 60 percent of the amount to be paid to the vendor for the material unless the vendor manufactures or substantially alters the goods;

(l) Credit for trucking by MBEs, WBEs and DVBEs will be as follows:

(1) One hundred percent of the amount to be paid when an MBE, WBE or DVBE trucker will perform the trucking with his/her own trucks, tractors and employees;

(2) Twenty percent of the amount to be paid to MBE, WBE and DVBE trucking brokers who do not have a "certified roster";

(3) One hundred percent of the amount to be paid to MBE, WBE and DVBE trucking brokers who have:

a. signed agreements that all trucking will be performed by MBE, WBE or DVBE truckers if credit is toward MBE and WBE goal, or DVBE goal;

b. a "certified roster" showing that all trucks are owned by certified MBEs, WBEs or DVBEs; and

c. a signed statement on the "certified roster" that indicates that 100 percent of revenue paid by the broker will be paid to the MBEs, WBEs or DVBEs listed on the "certified roster".

(4) Twenty percent of the amount to be paid to trucking brokers who are not an MBE, WBE or DVBE but who have:

a. signed agreements with MBE, WBE or DVBE truckers assuring that at least 20 percent of the trucking will be performed by MBE, WBE or DVBE truckers if credit is toward MBE or WBE goal, or DVBE goal;

b. a "certified roster" showing that at least 20 percent of the number of trucks are owned by certified MBE, WBE or DVBE truckers; and

c. a signed statement on the "certified roster" that indicates that at least 20 percent of the revenue paid by the broker will be paid to the MBEs, WBEs or DVBEs listed on the "certified roster".

The "certified roster" referred to herein shall conform to the requirements in Section 3-1.01A, "MBE/WBE/DVBE Information," of these special provisions;

(m) MBEs, WBEs and MBE and WBE joint venture partners, must be certified as of the date of bid opening either by the California Department of Transportation, or by a participating State of California or local agency which certifies in accordance with Title 49, Code of Federal Regulations, Part 23. Listings of MBEs and WBEs certified by the Department are available from the following sources:

(i) The Department's DB/WBE Directory which is published quarterly. The DB/WBE Directory may be obtained from the Department of Transportation, Publications Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916) 445-3520. An order form is available on the Internet at www.dot.ca.gov/hq/purchase/publicat.htm;

(ii) The Department's Electronic Information Bulletin Board Service (DB/WBE/BBS), which is accessible by modem and is updated weekly. The DB/WBE/BBS may be accessed by first contacting the Department's Business Enterprise Program at Telephone: (916) 227-8937 and obtaining a user identification and password;

It is the Contractor's responsibility to verify that MBEs and WBEs are certified;

(n) DVBEs and DVBE joint venture partners must be certified DVBEs as determined by the Department of General Services, Office of Small and Minority Business, 1531 "I" Street, Second Floor, Sacramento, CA 95814, on the date bids for the project are opened before credit may be allowed toward the DVBE goal.

It is the Contractor's responsibility to verify that DVBEs are certified;

(o) Noncompliance by the Contractor with these requirements constitutes a breach of this contract and may result in termination of the contract or other appropriate remedy for such breach.

2-1.03 MBE/WBE/DVBE GOALS FOR THIS PROJECT

The Department has established the following combined goal for Minority Business Enterprise (MBE), Women Business Enterprise (WBE) participation and Disabled Veteran Business Enterprise (DVBE) participation for this project:

Combined MBE/WBE/DVBE goal, 23 percent.

It is the bidder's responsibility to make a sufficient portion of the work available to subcontractors and suppliers and to select those portions of the work or material needs consistent with the available MBE, WBE and DVBE subcontractors and suppliers, so as to assure meeting the goals for MBE/WBE/DVBE participation.

The Department's Business Enterprise Program may be contacted at (916) 227-9599 for program information and certification status.

2-1.04 SUBMISSION OF MBE/WBE/DVBE INFORMATION

The required MBE, WBE and DVBE information shall be submitted **WITH THE BID** on the following "CALTRANS BIDDER - MBE/WBE/DVBE - INFORMATION" and "TELEPHONE LOG AND LIST OF REJECTED MBEs/WBEs/DVBEs."

It is the bidder's responsibility to meet the goals for MBE, WBE and DVBE participation or to establish that, prior to bidding, the bidder made good faith efforts to do so based on the information in the "CALTRANS BIDDER - MBE/WBE/DVBE - INFORMATION" and "TELEPHONE LOG AND LIST OF REJECTED MBEs/WBEs/DVBEs."

The information to show that the MBE/WBE/DVBE goals will be met on the "CALTRANS BIDDER - MBE/WBE/DVBE - INFORMATION" form shall include the names of MBEs, WBEs, DVBEs and MBE, WBE and DVBE joint venture partners to be used, with a complete description of work or supplies to be provided by each and the dollar value of each such MBE, WBE or DVBE transaction. When 100 percent of a contract item of work is not to be performed or furnished by an MBE, WBE or DVBE, a description of the exact portion of said work to be performed or furnished by that MBE, WBE or DVBE shall be included in the MBE/WBE/DVBE information, including the planned location of said work. (Note: MBE, WBE and DVBE subcontractors to whom the bidder proposes to directly subcontract portions of the work are to be named in the bid. - See Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications and Section 2-1.01, "General," of these special provisions, regarding listing of proposed subcontractors).

A DVBE who is also an MBE or WBE will receive credit for DVBE and MBE goals or DVBE and WBE goals, as the case may be.

If credit for trucking by an MBE, WBE or DVBE trucking broker is shown on the bidder's information as 100 percent of the revenue to be paid by the broker is to be paid to MBE, WBE and DVBE truckers, a "certified roster" of the broker's trucks to be used must be included with the bid. The "certified roster" must indicate that all the trucks are owned by certified MBEs, WBEs and DVBEs and must show the MBE, WBE and DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the MBE, WBE and DVBE certification numbers. The roster must indicate that all revenue paid by the broker will be paid to MBEs, WBEs and DVBEs listed on the "certified roster".

If credit for trucking by a trucking broker who is not an MBE, WBE or DVBE is shown in the bidder's information, a "certified roster" of the broker's trucks to be used must be included with the bid. The "certified roster" must indicate that at least 20 percent of the broker's trucks are owned by certified MBEs, WBEs and DVBEs and must show the MBE, WBE and DVBE truck numbers, owner's name, Public Utilities Commission Cal-T numbers, and the MBE, WBE and DVBE certification numbers. The roster must indicate that at least 20 percent of the revenue paid by the broker will be paid to MBEs, WBEs and DVBEs listed on the "certified roster".

Information necessary to establish the bidder's good faith efforts to meet the MBE, WBE and DVBE goals shall be included in the "TELEPHONE LOG AND LIST OF REJECTED MBEs/WBEs/DVBEs" form located in the Proposal and shall include:

1. The names, dates and times of notices of all certified MBEs, WBEs and DVBEs solicited by telephone for this project and the dates, times and methods used for following up initial solicitations to determine with certainty whether the MBEs, WBEs and DVBEs were interested.

2. The names of MBEs, WBEs and DVBEs who submitted bids which were not accepted and the reason for rejection of the MBE's, WBE's or DVBEs bid.

Bidders are cautioned that even though their submittal indicates they will meet the stated MBE, WBE and DVBE goals, their submittal should also include the telephone log and rejected MBE, WBE and DVBE information to protect their eligibility for award of the contract in the event the Department, in its review, finds that the goals have not been met.

It is the bidders responsibility to be available, by phone, both the day of and the day after the bid opening to answer questions and provide good faith effort clarification. The bidder shall also assure that listed MBEs, WBEs and DVBEs are available, by phone, on both days.

If it is found that the goal has not been met, the Department will review the information submitted with the bid to determine the bidder’s good faith effort. In the event that the Department determines that a bidder has not made a good faith effort based on the information submitted with the bid and its independent investigation, the Department’s decision will be final.

2-1.05 SMALL BUSINESS PREFERENCE

Attention is directed to "Award and Execution of Contract" elsewhere in these special provisions.

Attention is also directed to the Small Business Procurement and Contract Act, Government Code Section 14835, et seq and Title 2, California Code of Regulations, Section 1896, et seq.

Bidders who wish to be classified as a Small Business under the provisions of said laws and regulations, shall be certified as Small Business by the Department of General Services, Office of Small and Minority Business, 1531 "I" Street, Second Floor, Sacramento, CA 95814.

To request Small Business Preference, bidders shall fill out and sign the Request for Small Business Preference form in the Proposal and shall attach a copy of their Office of Small and Minority Business (OSMB) small business certification letter to the form. The bidder's signature on the Request for Small Business Preference certifies, under penalty of perjury, that the bidder is certified as Small Business at the time of bid opening and further certifies, under penalty of perjury, that under the following conditions, at least 50 percent of the subcontractors to be utilized on the project are either certified Small Business or have applied for Small Business certification by bid opening date and are subsequently granted Small Business certification.

The conditions requiring the aforementioned 50 percent level of subcontracting by Small Business subcontractors apply if:

1. The lowest responsible bid for the project exceeds $100,000; and

2. The project work to be performed requires a Class A or a Class B contractor's license; and

3. Two or more subcontractors will be used.

If the above conditions apply and Small Business Preference is granted in the award of the contract, the 50 percent Small Business subcontractor utilization level shall be maintained throughout the life of the contract.

2-1.06 CALIFORNIA COMPANY PREFERENCE

Attention is directed to "Award and Execution of Contract" of these special provisions.

In accordance with the requirements of Section 6107 of the Public Contract Code, a "California company" will be granted a reciprocal preference for bid comparison purposes as against a nonresident contractor from any state that gives or requires a preference to be given contractors from that state on its public entity construction contracts.

A "California company" means a sole proprietorship, partnership, joint venture, corporation, or other business entity that was a licensed California contractor on the date when bids for the public contract were opened and meets one of the following:

(1) Has its principal place of business in California.

(2) Has its principal place of business in a state in which there is no local contractor preference on construction contracts.

(3) Has its principal place of business in a state in which there is a local contractor construction preference and the contractor has paid not less than $5000 in sales or use taxes to California for construction related activity for each of the five years immediately preceding the submission of the bid.

To carry out the "California company" reciprocal preference requirements of Section 6107 of the Public Contract Code, all bidders shall fill out and sign the California Company Preference form in the Proposal. The bidder's signature on the California Company Preference form certifies, under penalty of perjury, that the bidder is or is not a "California company" and if not, the amount of the preference applied by the state of the nonresident Contractor.

A nonresident Contractor shall disclose any and all bid preferences provided to the nonresident Contractor by the state or country in which the nonresident Contractor has its principal place of business.

Proposals without the California Company Preference form filled out and signed may be rejected.

SECTION 3. AWARD AND EXECUTION OF CONTRACT

The bidder's attention is directed to the provisions in Section 3, "Award and Execution of Contract," of the Standard Specifications, and these special provisions for the requirements and conditions concerning ~~a~~ward and execution of contract.

The award of contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed and who has met the goals for MBE/WBE/DVBE participation or has demonstrated, to the satisfaction of the Department, good faith effort to do so. Meeting the goals for MBE/WBE/DVBE participation or demonstrating, to the satisfaction of the Department, good faith efforts to do so is a condition for being eligible for award of contract.

It is anticipated that this contract will be awarded within 10 days after the bid opening.

The contract shall be signed by the successful bidder and shall be received with contract bonds by the Department within **4 days**, including Saturdays, Sundays and legal holidays, after the bidder has received notice that the contract has been awarded. Failure to do so shall be just cause for forfeiture of the proposal guaranty. The executed contract documents shall be delivered to the following address: Department of Transportation, P.O. Box 942874, Sacramento, CA 94274-0001, Attn: Office Engineer (MS 43)- Contracts.

Within 2 days, not including Saturdays, Sundays and legal holidays, of return of the executed contract and bonds, the Department will notify the successful bidder of either approval of the contract by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation, or disapproval of the submittal. Should the Department fail to provide notification within said 2 days, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

A "Vendor Data Record" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to facilitate the collection of taxpayer identification data. The form shall be completed and returned to the Department by the successful bidder with the executed contract and contract bonds. For the purposes of the form, vendor shall be deemed to mean the successful bidder. The form is not to be completed for subcontractors or suppliers. Failure to complete and return the "Vendor Data Record" form to the Department as provided herein will result in the retention of 20 percent of payments due the contractor and penalties of up to $20,000. This retention of payments for failure to complete the "Vendor Data Record" form is in addition to any other retention of payments due the Contractor.

Attention is also directed to "Small Business Preference" of these special provisions. Any bidder who is certified as a Small Business by the Department of

General Services, Office of Small and Minority Business will be allowed a preference in the award of this contract, if it be awarded, under the following conditions:

(1) The apparent low bidder is not certified as a Small Business, or has not filled out and signed the Request for Small Business Preference included with the bid documents and attached a copy of their Office of Small and Minority Business (OSMB) small business certification letter to the form; and

(2) The bidder filled out and signed the Request for Small Business Preference form included with the bid documents and attached a copy of their Office of Small and Minority Business (OSMB) small business certification letter to the form.

The small business preference will be a reduction in the bid submitted by the small business contractor, for bid comparison purposes, by an amount equal to 5 percent of the amount bid by the apparent low bidder, said amount not to exceed $50,000. If such reduction results in the small business contractor becoming the low bidder, then the contract will be awarded to said small business contractor on the basis of the actual bid of the small business contractor notwithstanding the reduced bid price used for bid comparison purposes.

Attention is also directed to "California Company Preference" of these special provisions.

The amount of the California company reciprocal preference shall be equal to the amount of the preference applied by the state of the nonresident contractor with the lowest responsive bid, except where the "California company" is eligible for a California Small Business Preference, in which case the preference applied shall be the greater of the two, but not both.

If the bidder submitting the lowest responsive bid is not a "California company" and with the benefit of the reciprocal preference, a "California company's" responsive bid is equal to or less than the original lowest responsive bid, the "California company" will be awarded the contract at its submitted bid price except as provided below.

Small business bidders shall have precedence over nonsmall business bidders in that the application of the "California company" preference for which nonsmall business bidders may be eligible shall not result in the denial of the award to a small business bidder.

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

Attention is directed to the provisions in Section 8-1.03, "Beginning of Work," in Section 8-1.06, "Time of Completion," and in Section 8-1.07, "Liquidated Damages," of the Standard Specifications and these special provisions.

The Contractor shall begin work within 5 calendar days after the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation.

Said work shall be diligently prosecuted to completion before the expiration of

400 WORKING DAYS

beginning at 12:01 a.m. on the **FIRST WORKING DAY AFTER CONTRACT AWARD**.

The Contractor shall pay to the State of California the sum of $900 per day, for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed above.

The 72 hours advance notice before beginning work as referred to in said Section 8-1.03 is changed to 24 hours advance notice for this project.

Attention is directed to "Maintaining Traffic" elsewhere in these special provisions regarding additional liquidated damages.

SECTION 5. GENERAL

SECTION 5-1. MISCELLANEOUS

5-1.01 LABOR NONDISCRIMINATION

Attention is directed to the following Notice that is required by Chapter 5 of Division 4 of Title 2, California Code of Regulations.

NOTICE OF REQUIREMENT FOR NONDISCRIMINATION PROGRAM (GOV. CODE, SECTION 12990)

Your attention is called to the "Nondiscrimination Clause", set forth in Section 7-1.01A(4), "Labor Nondiscrimination," of the Standard Specifications, which is applicable to all nonexempt state contracts and subcontracts, and to the "Standard California Nondiscrimination Construction Contract Specifications" set forth therein. The Specifications are applicable to all nonexempt state construction contracts and subcontracts of $5,000 or more.

5-1.02 PREVAILING WAGE

Attention is directed to Section 7-1.01A(2), "Prevailing Wage," of the Standard Specifications.

The general prevailing wage rates determined by the Director of Industrial Relations, for the county or counties in which the work is to be done, are available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated. The wage rates are not included in the Proposal and Contract for the project. Changes, if any, to the general prevailing wage rates will be available at the same location.

5-1.03 CONTRACTOR'S LICENSING LAWS

The third paragraph of Section 7-1.01C, "Contractor's Licensing Laws," of the Standard Specifications is amended to read:

Attention is also directed to the provisions of Public Contract Code Section 10164. In all projects where Federal funds are involved, the Contractor shall be properly licensed at the time the contract is awarded.

5-1.04 ARBITRATION

The last paragraph in Section 9-1.10, "Arbitration," of the Standard Specifications is amended to read.

Arbitration shall be initiated by a Complaint in Arbitration made in compliance with the requirements of said regulations. A Complaint in Arbitration by the Contractor shall be made not later than 180 days after the date of service in person or by mail on the Contractor of the final written decision by the Department on the claim.

5-1.05 NOTICE OF POTENTIAL CLAIM

Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications is amended to read:

9-1.04 Notice of Potential Claim.—The Contractor shall not be entitled to the payment of any additional compensation for any act, or failure to act, by the Engineer, including failure or refusal to issue a change order, or for the happening of any event, thing, occurrence, or other cause, unless he shall have given the Engineer due written notice of potential claim as hereinafter specified. Compliance with this Section 9-1.04 shall not be a prerequisite as to matters within the scope of the protest provisions in Section 4-1.03, "Changes," or Section 8-1.06, "Time of Completion," or the notice provisions in Section 5-1.116, "Differing Site Conditions," or Section 8-1.07, "Liquidated Damages," or Section 8-1.10, "Utility and Non-Highway Facilities," nor to any claim which is based on differences in measurements or errors of computation as to contract quantities.

The written notice of potential claim shall be submitted to the Engineer prior to the time that the Contractor performs the work giving rise to the potential claim for additional compensation, if based on an act or failure to act by the Engineer, or in all other cases within 15 days after the happening of the event, thing, occurrence, or other cause, giving rise to the potential claim.

The written notice of potential claim shall be submitted on Form CEM-6201 furnished by the Department and shall be certified with reference to the California False Claims Act, Government Code Sections 12650 - 12655. The notice shall set forth the reasons for which the Contractor believes additional compensation will or may be due and the nature of the costs involved. Unless the amount of the potential claim has been stated in the written notice, the Contractor shall, within 15 days of submitting said notice, furnish an estimate of the cost of the affected work and impacts, if any, on project completion. Said estimate of costs may be changed or updated by the Contractor when conditions have changed. When the affected work is completed, the Contractor shall submit substantiation of his actual costs. Failure to do so shall be sufficient cause for denial of any claim subsequently filed on the basis of said notice of potential claim.

It is the intention of this Section 9-1.04 that differences between the parties arising under and by virtue of the contract be brought to the attention of the Engineer at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that he shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing or occurrence for which no written notice of potential claim as herein required was filed.

Should the Contractor, in connection with or subsequent to the assertion of a potential claim, request inspection and copying of documents or records in the possession of the Department that pertain to the potential claim, Contractor shall make its records of the project, as deemed by the Department to be pertinent to the potential claim, available to the Department for inspection and copying.

5-1.06 PARTIAL PAYMENTS

The last paragraph of Section 9-1.06, "Partial Payments," of the Standard Specifications is amended to read:

Attention is directed to the prohibitions and penalties pertaining to unlicensed contractors as provided in Business and Professions Code Sections 7028.15(a) and 7031.

5-1.07 PAYMENT OF WITHHELD FUNDS

Section 9-1.065, "Payment of Withheld Funds," of the Standard Specifications, is amended by adding the following after the third paragraph:

Alternatively, and subject to the approval of the Department, the payment of retentions earned may be deposited directly with a person licensed under Division 6 (commencing with Section 17000) of the Financial Code as the escrow agent. Upon written request of an escrow agent that has not been approved by the Department under subdivision (c) of Section 10263 of the Public Contract Code, the Department will provide written notice to that escrow agent within 10 business days of receipt of the request indicating the reason or reasons for not approving that escrow

agent. The payments will be deposited in a trust account with a Federally chartered bank or savings association within 24 hours of receipt by the escrow agent. The Contractor shall not place any retentions with the escrow agent in excess of the coverage provided to that escrow agent pursuant to subdivision (b) of Section 17314 of the Financial Code. In all respects not inconsistent with subdivision (c) of Section 10263 of the Public Contract Code, the remaining provisions of Section 10263 of the Public Contract Code shall apply to escrow agents acting pursuant to subdivision (c) of Section 10263 of the Public Contract Code. This paragraph shall not be applicable to payments deposited on or after January 1, 1997.

5-1.08 FINAL PAYMENT AND CLAIMS

Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications is amended to read:

9-1.07B Final Payment and Claims.—After acceptance by the Director, the Engineer will make a proposed final estimate in writing of the total amount payable to the Contractor, including therein an itemization of said amount, segregated as to contract item quantities, extra work and any other basis for payment, and shall also show therein all deductions made or to be made for prior payments and amounts to be kept or retained under the provisions of the contract. All prior estimates and payments shall be subject to correction in the proposed final estimate. The Contractor shall submit written approval of the proposed final estimate or a written statement of all claims arising under or by virtue of the contract so that the Engineer receives such written approval or statement of claims no later than close of business of the thirtieth day after receiving the proposed final estimate. If the thirtieth day falls on a Saturday, Sunday or legal holiday, then receipt of such written approval or statement of claims by the Engineer shall not be later than close of business of the next business day. No claim will be considered that was not included in the written statement of claims, nor will any claim be allowed as to which a notice or protest is required under the provisions in Sections 4-1.03, "Changes," 8-1.06, "Time of Completion," 8-1.07, "Liquidated Damages," 5-1.116, "Differing Site Conditions," 8-1.10, "Utility and Non-Highway Facilities," and 9-1.04, "Notice of Potential Claim," unless the Contractor has complied with the notice or protest requirements in said sections.

On the Contractor's approval, or if he files no claim within said period of 30 days, the Engineer will issue a final estimate in writing in accordance with the proposed final estimate submitted to the Contractor and within 30 days thereafter the State will pay the entire sum so found to be due. Such final estimate and payment thereon shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except as otherwise provided in Sections 9-1.03C, "Records," and 9-1.09, "Clerical Errors."

If the Contractor within said period of 30 days files claims, the Engineer will issue a semifinal estimate in accordance with the proposed final estimate submitted to the Contractor and within 30 days thereafter the State will pay the sum so found to be due. Such semifinal estimate and payment thereon shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except insofar as affected by the claims filed within the time and in the manner required hereunder and except as otherwise provided in Sections 9-1.03C, "Records," and 9-1.09, "Clerical Errors."

Claims filed by the Contractor shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of said claims. If additional information or details are required by the Engineer to determine the basis and amount of said claims, the Contractor shall furnish such further information or details so that the information or details are received by the Engineer no later than the fifteenth day after receipt of the written request from the Engineer. If the fifteenth day falls on a Saturday, Sunday or legal holiday, then receipt of such information or details by the Engineer shall not be later than close of business of the next business day. Failure to submit such information and details to the Engineer within the time specified will be sufficient cause for denying the claim.

The Contractor shall keep full and complete records of the costs and additional time incurred for any work for which a claim for additional compensation is made. The Engineer or any designated claim investigator or auditor shall have access to those records and any other records as may be required by the Engineer to determine the facts or contentions involved in the claims. Failure to permit access to such records shall be sufficient cause for denying the claims.

Claims submitted by the Contractor shall be accompanied by a notarized certificate containing the following language:

> Under the penalty of law for perjury or falsification and with specific reference to the California False Claims Act, Government Code Section 12650 et. seq., the undersigned,

_____
,
(name)
_____ of
(title)
_____
,
(company)

hereby certifies that the claim for the additional compensation and time, if any, made herein for the work on this contract is a true statement of the actual costs incurred and time sought, and is fully documented and supported under the contract between parties.

Dated _____

/s/
_____

Subscribed and sworn before me this _____ day

of _____.

_____
Notary Public
My Commission Expires _____

Failure to submit the notarized certificate will be sufficient cause for denying the claim.

Any claim for overhead type expenses or costs, in addition to being certified as stated above, shall be supported by an audit report of an independent Certified Public Accountant. Any such overhead claim shall also be subject to audit by the State at its discretion.

Any costs or expenses incurred by the State in reviewing or auditing any claims that are not supported by the Contractor's cost accounting or other records shall be deemed to be damages incurred by the State within the meaning of the California False Claims Act.

The District Director of the District which administers the contract will make the final determination of any claims which remain in dispute after completion of claim review by the Engineer. A board or person designated by said District Director will review such claims and make a written recommendation thereon to the District Director. The Contractor may meet with the review board or person to make a presentation in support of such claims.

Upon final determination of the claims, the Engineer will then make and issue his final estimate in writing and within 30 days thereafter the State will pay the entire sum, if any, found due thereon. Such final estimate shall be conclusive and binding against both parties to the contract on all questions relating to the amount of work done and the compensation payable therefor, except as otherwise provided in Sections 9-1.03C, "Records," and 9-1.09, "Clerical Errors."

5-1.09 PUBLIC SAFETY

The Contractor shall provide for the safety of traffic and the public in accordance with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and these special provisions.

The Contractor shall install temporary railing (Type K) between any lane carrying public traffic and any excavation, obstacle, or storage area when the following conditions exist:

(1) Excavations.--Any excavation, the near edge of which is 12 feet or less from the edge of the lane, except:

(a) Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
(b) Excavations less than one foot deep.
(c) Trenches less than one foot wide for irrigation pipe or electrical conduit, or excavations less than one foot in diameter.
(d) Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
(e) Excavations in side slopes, where the slope is steeper than 4:1.
(f) Excavations protected by existing barrier or railing.

(2) Temporarily Unprotected Permanent Obstacles.--Whenever the work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or whenever the Contractor, for his convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.

(3) Storage Areas.--Whenever material or equipment is stored within 12 feet of the lane and such storage is not otherwise prohibited by the specifications.

The approach end of temporary railing (Type K), installed in accordance with the requirements in this section "Public Safety" and in Section 7-1.09, "Public Safety," of the Standard Specifications shall be offset a minimum of 15 feet from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15-foot

minimum offset cannot be achieved, the temporary railing shall be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in Section 12-3.08, "Temporary Railing (Type K)" of the Standard Specifications, except temporary railing (Type K) fabricated prior to January 1, 1993, with one longitudinal No. 5 reinforcing steel bar near the top in lieu of the 2 longitudinal No. 5 reinforcing steel bars near the top, as shown on the plans, may be used.

Temporary crash cushion modules shall conform to the provisions in "Temporary Crash Cushion Module" elsewhere in these special provisions.

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas the Contractor shall close the adjacent traffic lane unless otherwise provided in the specifications:

Approach speed of public traffic (Posted Limit) (Miles Per Hour)	Work Areas
Over 45	Within 6 feet of a traffic lane but not on a traffic lane.
35 to 45	Within 3 feet of a traffic lane but not on a traffic lane.

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of traffic lane, the line of cones or delineators shall be considered to be the edge of traffic lane, however, the Contractor shall not reduce the width of an existing lane to less than 10 feet without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure.

Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

Full compensation for conforming to the requirements in this section "Public Safety," including furnishing and installing temporary railing (Type K) and temporary crash cushion modules, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

5-1.10 SURFACE MINING AND RECLAMATION ACT

Attention is directed to the Surface Mining and Reclamation Act of 1975, commencing in Public Resources Code, Mining and Geology, Section 2710, which establishes regulations pertinent to surface mining operations.

Material from mining operations furnished for this project shall only come from permitted sites in compliance with the Surface Mining and Reclamation Act of 1975.

The requirements of this section shall apply to all materials furnished for the project, except for acquisition of materials in conformance with Section 4-1.05, "Use of Materials Found on the Work," of the Standard Specifications.

5-1.11 REMOVAL OF ASBESTOS AND HAZARDOUS SUBSTANCES

When the presence of asbestos or hazardous substances are not shown on the plans or indicated in the specifications and the Contractor encounters materials which the Contractor reasonably believes to be asbestos or a hazardous substance as defined in Section 25914.1 of the Health and Safety Code, and the asbestos or hazardous substance has not been rendered harmless, the Contractor may continue work in unaffected areas reasonably believed to be safe, and shall immediately cease work in the affected area and report the condition to the Engineer in writing.

In accordance with Section 25914.1 of the Health and Safety Code, all such removal of asbestos or hazardous substances including any exploratory work to identify and determine the extent of such asbestos or hazardous substance will be performed by separate contract.

If delay of work in the area delays the current controlling operation, the delay will be considered a right of way delay and the Contractor will be compensated for such delay as provided in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

5-1.12 FINAL PAY QUANTITIES

Section 9-1.015, "Final Pay Quantities," of the Standard Specifications is amended to read:

9-1.015 Final Pay Items.—When an item of work is designated as (F) or (S-F) in the Engineer's Estimate, the estimated quantity for that item of work shall be the final pay quantity, unless the dimensions of any portion of that item are revised by the Engineer, or the item or any portion of the item is eliminated. If the dimensions of any portion of the item are revised, and the revisions result in an increase or decrease in the estimated quantity of that item of work, the final pay quantity for the item will be revised in the amount represented by the changes in the dimensions, except as otherwise provided for

minor structures in Section 51-1.22, "Measurement." If a final pay item is eliminated, the estimated quantity for the item will be eliminated. If a portion of a final pay item is eliminated, the final pay quantity will be revised in the amount represented by the eliminated portion of the item of work.

The estimated quantity for each item of work designated as (F) or (S-F) in the Engineer's Estimate shall be considered as approximate only, and no guarantee is made that the quantity which can be determined by computations, based on the details and dimensions shown on the plans, will equal the estimated quantity. No allowance will be made in the event that the quantity based on computations does not equal the estimated quantity.

In case of discrepancy between the quantity shown in the Engineer's Estimate for a final pay item and the quantity or summation of quantities for the same item shown on the plans, payment will be based on the quantity shown in the Engineer's Estimate.

5-1.13 MBE, WBE AND DVBE RECORDS

The Contractor shall maintain records of all subcontracts entered into with certified MBE, WBE or DVBE subcontractors and records of materials purchased from certified MBE, WBE or DVBE suppliers. Such records shall show the name and business address of each MBE, WBE or DVBE subcontractor or vendor and the total dollar amount actually paid each MBE, WBE or DVBE subcontractor or vendor.

Upon completion of the contract, a summary of these records shall be prepared on Form CEM-2402 and certified correct by the Contractor or his authorized representative, and shall be furnished to the Engineer.

5-1.14 PERFORMANCE OF MBE, WBE AND DVBE SUBCONTRACTORS AND SUPPLIERS

The MBEs, WBEs and DVBEs listed by the Contractor in response to the requirements in Section 2-1.04, "Submission of MBE/WBE/DVBE Information," in these special provisions, which are determined by the Department to be certified MBEs, WBEs or DVBEs, shall perform the work and supply the materials for which they are listed unless the Contractor has received prior written authorization to perform the work with other forces or to obtain the materials from other sources.

Authorization to utilize other forces or sources of materials may be requested for the following reasons:

(1) The listed MBE, WBE or DVBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written contract, when such written contract, based upon the general terms, conditions, plans and specifications for the project, or on the terms of such subcontractor's or supplier's written bid, is presented by the Contractor.

(2) The listed MBE, WBE or DVBE becomes bankrupt or insolvent.

(3) The listed MBE, WBE or DVBE fails or refuses to perform his subcontract or furnish the listed materials.

(4) The Contractor stipulated that a bond was a condition of executing a subcontract and the listed MBE, WBE or DVBE subcontractor fails or refuses to meet the bond requirements of the Contractor.

(5) The work performed by the listed subcontractor is substantially unsatisfactory and is not in substantial accordance with the plans and specifications, or the subcontractor is substantially delaying or disrupting the progress of the work.

(6) It would be in the best interest of the State.

The Contractor shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed MBE, WBE or DVBE or by other forces (including those of the Contractor) pursuant to prior written authorization of the Engineer.

If a trucking broker, who is not an MBE, WBE or DVBE but was listed for MBE, WBE or DVBE credit in the Contractor's MBE/WBE/DVBE information, fails to pay at least 20 percent to the MBEs, WBEs or DVBEs listed on the broker's "certified roster", the broker will no longer be eligible for MBE, WBE or DVBE credit for one year.

If an MBE, WBE or DVBE trucking broker was listed for MBE, WBE or DVBE credit in the Contractor's MBE/WBE/DVBE information on the basis of the broker's signed agreements with MBE, WBE or DVBE truckers that the trucking will be performed by certified MBE, WBE or DVBE truckers and if all the revenue paid by the broker is not paid to the MBEs, WBEs or DVBEs listed on the broker's "certified roster", the broker will no longer be eligible for 100 percent MBE, WBE or DVBE credit for one year.

The Contractor shall include the above information in the agreements made with trucking brokers so that brokers will be aware that they may become ineligible for MBE, WBE and DVBE credit.

The Contractor shall submit monthly documentation to the Engineer that shows the amount paid to MBE, WBE and DVBE truckers under trucking brokers listed in the Contractor's MBE/WBE/DVBE information. The records must confirm that no less than 20 percent was paid to MBE, WBE or DVBE truckers by brokers who are not MBEs, WBEs or DVBEs and that all the revenue paid by MBE, WBE or DVBE brokers was paid to MBE, WBE or DVBE truckers if the Contractor indicated in the MBE/WBE/DVBE information that the broker had signed agreements with MBE, WBE or DVBE truckers that the trucking will be performed by MBE, WBE or DVBE truckers.

5-1.15 SUBCONTRACTING

Attention is directed to the provisions in Section 8-1.01, "Subcontracting," of the Standard Specifications, Section 2, "Proposal Requirements and Conditions," Section 2-1.04, "Submission of MBE/WBE/DVBE

Information," and Section 3, "Award and Execution of Contract," elsewhere in these special provisions and these special provisions.

The second sentence in the third paragraph of said Section 8-1.01 is amended to read:

When items of work in the Engineer's Estimate are preceded by the letters (S) or (S-F), said items are designated as "Specialty Items."

The MBE, WBE and DVBE information furnished under said Section 2-1.04 of these special provisions is in addition to the subcontractor information required to be furnished under said Section 8-1.01, "Subcontracting," and Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications.

Section 10115 of the Public Contract Code requires the Department to implement provisions to establish goals for Minority Business Enterprise (MBE), Women Business Enterprise (WBE) and Disabled Veteran Business Enterprise (DVBE) participation in highway contracts that are state funded. As a part of this requirement:

1. No substitution of an MBE, WBE or DVBE subcontractor shall be made at any time without the written consent of the Department, and

2. If an MBE, WBE or DVBE subcontractor is unable to perform successfully and is to be replaced, the Contractor will be required to make good faith efforts to replace the original MBE, WBE or DVBE subcontractor with another MBE, WBE or DVBE subcontractor.

The requirement in Section 2-1.02, "Minority Business Enterprise (MBE), Women Business Enterprise (WBE) and Disabled Veteran Business Enterprise (DVBE)," of these special provisions that MBEs, WBEs and DVBEs must be certified on the date bids are opened does not apply to MBE, WBE and DVBE substitutions after award of the contract.

5-1.16 PARTNERING

The State will promote the formation of a "Partnering" relationship with the Contractor in order to effectively complete the contract to the benefit of both parties. The purpose of this relationship will be to maintain cooperative communication and mutually resolve conflicts at the lowest possible management level.

The Contractor may request the formation of such a "Partnering" relationship by submitting a request in writing to the Engineer after approval of the contract. If the Contractor's request for "Partnering" is approved by the Engineer, scheduling of a "Partnering" workshop, selecting the "Partnering" facilitator and workshop site, and other administrative details shall be as agreed to by both parties.

The costs involved in providing a facilitator and a workshop site will be borne equally by the State and the Contractor. The Contractor shall pay all compensation for the wages and expenses of the facilitator, and of the expenses for obtaining the workshop site. The State's share of such costs will be reimbursed to the Contractor in a change order written by the Engineer. Markups will not be added. All other costs associated with the "Partnering" relationship will be borne separately by the party incurring the costs.

The establishment of a "Partnering" relationship will not change or modify the terms and conditions of the contract and will not relieve either party of the legal requirements of the contract.

5-1.17 DISPUTES REVIEW BOARD

To assist in the resolution of disputes or potential claims arising out of the work of this project, a Disputes Review Board, hereinafter referred to as the "DRB", shall be established, unless the Contractor, within 45 days of approval of the contract, either submits a written statement to the Engineer indicating the Contractor's unwillingness to participate in a DRB and outlining the reasons therefor or fails to take action for establishment of the DRB as hereinafter provided. The DRB is intended to assist the contract administrative claims resolution process as set forth in the provisions of Section 9-1.04, "Notice of Potential Claim," and Section 9-1.07B, "Final Payment and Claims," of the Standard Specifications as amended elsewhere in these special provisions. The DRB shall not serve as a substitute for any requirements in the Standard Specifications nor any requirements elsewhere in these special provisions.

If the DRB is established, the DRB shall be utilized when dispute or potential claim resolution at the job level is unsuccessful. Once established, the DRB shall function until the day of acceptance of the contract unless terminated earlier by either the State or the Contractor as provided in the Disputes Review Board Agreement. On the day of acceptance of the contract or if the DRB is terminated earlier, the work of the DRB will cease except for completion of unfinished dispute hearings and reports. After acceptance of the contract or termination of the DRB, any disputes or potential claims that the Contractor wants to pursue, including disputes previously submitted to the DRB but unresolved, must be stated or restated in response to the Proposed Final Estimate within the time limits provided in Section 9-1.07B of the Standard Specifications as amended elsewhere in these special provisions. The State will review such claims in accordance with Section 9-1.07B, as amended. Following the completion of the State's administrative claims procedure, the Contractor may resort to arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications.

Disputes, as used in this section, shall include all differences of opinion, properly noticed as provided hereinafter, between the State and Contractor on matters

related to the work and other subjects considered by the State or Contractor, or by both, to be of concern to the DRB on this project. Whenever the term "dispute" or "disputes" is used herein, it shall be deemed to include potential claims as well as disputes.

The DRB shall serve as an advisory body to assist in the resolution of disputes between the State and the Contractor, hereinafter referred to as the "parties". The DRB shall consider disputes referred to it, and furnish written reports containing findings and recommendations pertaining to those disputes, to the parties to aid in resolution of the differences between them. DRB findings and recommendations are not binding on the parties.

The DRB shall consist of one member selected by the State, one member selected by the Contractor, and a third member selected by the first 2 members and approved by both the State and the Contractor. The third member shall act as DRB Chairperson.

The first 2 DRB members shall select a third DRB member subject to the mutual approval of the parties, or may mutually concur on a list of potentially acceptable third DRB members and submit the list to the parties for final selection and approval of the third member. The goal in selection of the third member is to complement the professional experience of the first 2 members, and to provide leadership for the DRB's activities.

No DRB member shall have prior direct involvement in this contract, and no member shall have a financial interest in this contract or the parties thereto, within a period of 6 months prior to award of this contract, or during the contract, except as follows:

1. Compensation for services on this DRB.
2. Ownership interest in a party or parties, documented by the prospective DRB member, that has been reviewed and determined in writing by the State to be sufficiently insignificant to render the prospective member acceptable to the State.
3. Service as a member of other Disputes Review Boards on other contracts.
4. Retirement payments or pensions received from a party that are not tied to, dependent on or affected by the net worth of the party.

The above provisions apply to any party having a financial interest in this contract; including but not limited to contractors, subcontractors, suppliers, consultants, and legal and business services.

DRB members shall be especially knowledgeable in the type of construction and contract documents potentially anticipated by the contract, and shall discharge their responsibilities impartially and as an independent body considering the facts and circumstances related to the matters under consideration, applicable laws and regulations, and the pertinent provisions of the contract.

The State and the Contractor shall select their respective DRB members, in accordance with the terms and conditions of the Disputes Review Board Agreement and these special provisions, within 45 days of the approval of the contract unless a written statement declining to participate in the DRB has been submitted by the Contractor. Each party shall provide written notification to the other of the name of their selected DRB member along with the prospective member's written disclosure statement as provided below. Failure of the Contractor to select a DRB member and provide the required written notification and disclosure statement within the time specified above shall be considered as rejection of the DRB, and no DRB will be established for this contract. A copy of a Disputes Review Board Agreement, Form Cem-6202, to be completed by the Contractor, the State, and the DRB members after award of the contract if the Contractor elects to establish a DRB for this project, is included in the "Proposal and Contract" book.

Before their appointments are final, the first 2 prospective DRB members shall submit complete disclosure statements to their appointing party. The statement shall include a resume of the prospective member's experience, together with a declaration describing all past, present and anticipated or planned future relationships, including indirect relationships through the prospective member's primary or full-time employer, to this project and with all parties involved in this construction contract; including, but not limited to, any relevant subcontractors or suppliers to the parties, the parties' principals or the parties' counsel. Disclosure of close professional or personal relationships with all key members of all parties to the contract shall be included. The third DRB member shall supply such a statement to the first 2 DRB members and to the parties prior to appointment. Failure of any of the 3 prospective DRB members to fully comply with all required employment and financial conditions of DRB membership as described in the Disputes Review Board Agreement and elsewhere herein shall constitute sufficient grounds for rejection of the prospective member by either party.

The first duty of the State and Contractor selected members of the DRB is to select and recommend prospective third member(s) to the parties for final selection and approval. The first 2 DRB members shall proceed with the selection of the third DRB member immediately upon receiving written notification from the State of their selection, and shall provide their recommendation simultaneously to the parties within 14 days of the notification.

In the event of an impasse in selection of the third DRB member, the State and the Contractor shall each propose 3 candidates for the third position. All candidates proposed under this paragraph shall be selected from the current list of arbitrators certified by the Public Works Contract Arbitration Committee created by Article 7.2 (commencing with Section 10245) of the State Contract Act. The first 2 DRB members shall then select one of the 6 proposed candidates in a blind draw. An impasse shall be considered to have been reached if the parties are unable to approve a third member within 14 days of receipt of the recommendation of the first 2 DRB members, or if the first 2 members are unable to agree

upon a recommendation within the 14 day time limit allowed in the preceding paragraph.

The Contractor, the State, and all 3 members of the DRB shall execute the Disputes Review Board Agreement within 14 days of selection of the third member. The Disputes Review Board Agreement, Form CEM-6202 prepared by the Department, shall be executed and adhered to in administration of this DRB. The Engineer shall be the person authorized by the State to execute and administer the terms of the Agreement. The person(s) designated by the Contractor as authorized to execute Contract Change Orders shall be authorized to execute and administer the terms of this agreement, or delegate such authority in writing. The operation of the DRB will be in conformance with the terms of the Disputes Review Board Agreement.

The compensation and expenses of the DRB shall be borne equally by the State and the Contractor. The State will provide, at no cost to the Contractor, administrative services such as conference facilities and secretarial services to the DRB. Compensation and expenses of the DRB shall be as provided in the Disputes Review Board Agreement. All DRB members shall be compensated at the same hourly rate. The Contractor shall pay all compensation for the wages and expenses of the DRB. The State's share of such costs will be reimbursed to the Contractor in a change order written by the Engineer. There will be no markups applied to any expenses connected with the DRB, either by the DRB members or by the Contractor when requesting payment of the State's share of DRB expenses.

Service of a DRB member may be terminated at any time with not less than 14 days notice as follows:

1. The State may terminate service of the State appointed member.
2. The Contractor may terminate service of the Contractor appointed member.
3. The third member's services may be terminated only by agreement of the other 2 members.
4. By resignation of a member.

Termination of a member will be followed by appointment of a replacement as specified below. Changes in either of the DRB members chosen by the 2 parties will not require reselection of the third member, unless both parties agree to such reselection in writing.

When a member of the DRB is replaced, the replacement member shall be appointed in the same manner as the replaced member was appointed. The appointment of a replacement DRB member will begin promptly upon determination of the need for replacement and shall be completed within 14 days. The Disputes Review Board Agreement will be amended to reflect the change of a DRB member.

The following procedure shall be used for dispute resolution:

1. If the Contractor objects to any decision, act or order of the Engineer, the Contractor shall give written notice of potential claim as specified in Section 9-1.04, "Notice of Potential Claim," of the Standard Specifications, as amended elsewhere in these special provisions, including provision of applicable cost documentation; or file written protests or notices pursuant to Sections 4-1.03A, "Procedure and Protest," 8-1.06, "Time of Completion," 8-1.07, "Liquidated Damages," or 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications.
2. The Engineer will respond, in writing, to the Contractor's written protest or notice within 14 days of receipt of the written protest or notice.
3. Within 14 days after receipt of the Engineer's written response, the Contractor shall, if the Contractor still objects, file a written reply with the Engineer, stating clearly and in detail the basis of the objection.
4. Following the Contractor's objection to the Engineer's decision, the dispute can be referred to the DRB by either the State or the Contractor. Such referral shall be made in writing to the DRB, simultaneously copied to the other party, within 14 days after receipt of the Contractor's written reply to the Engineer. The written dispute referral shall describe the disputed matter in individual discrete segments such that it will be clear to both parties and the DRB what discrete elements of the dispute have been resolved, and which remain unresolved.
5. The Contractor and the State shall each be afforded an opportunity to be present and to be heard by the DRB, and to offer evidence. Either party furnishing any written evidence or documentation to the DRB must furnish copies of such information to the other party a minimum of 14 days prior to the date the DRB is scheduled to convene the hearing for the dispute. Either party shall produce such additional evidence as the DRB may deem necessary to reach an understanding and determination of the dispute. The party furnishing additional evidence shall furnish copies of such additional evidence to the other party at the same time the evidence is provided to the DRB. The DRB will not consider any evidence not furnished in accordance with the terms specified herein.
6. The DRB's report, containing findings and recommendations as described in the Disputes Review Board Agreement, will be furnished in writing to both the State and the Contractor. DRB reports, including minority opinion if any, shall be completed and submitted to the parties within 30 days of the DRB hearing, except that time extensions may be granted at the request of the DRB by written concurrence of both parties.

The report will consider the facts and circumstances related to the matters under consideration, applicable laws and regulations, the pertinent provisions of the Contract and the actual costs and time incurred as shown on the Contractor's cost accounting records. The provisions of Section 9-1.03, "Force Account Payment", of the Standard Specifications should be utilized by the DRB only when appropriate under the contract provisions.

7. Within 30 days of receiving the DRB's report, both the State and the Contractor shall respond to the DRB in writing signifying that the dispute is either resolved or remains unresolved. Failure to provide such written response within the time specified, or a written rejection of the DRB's recommendation presented in the report by either party, will result in the reversion of the subject dispute to the administrative claims resolution process specified in the contract. Immediately after responses have been received by both parties, the DRB will provide copies of both responses to the parties simultaneously. Either party may request clarification of elements of the DRB's report from the DRB prior to responding to the report. Any such request will be considered by the DRB only if submitted within 10 days of receipt of the DRB's report, and shall be submitted simultaneously in writing to both the DRB and the other party. Only one request for clarification will be allowed from each party for any individual DRB report. The DRB shall respond, in writing, to requests for clarification within 10 days of receipt of such requests.
8. The DRB's recommendations, stated in the DRB's reports, are not binding on either party. Either party may appeal a recommendation of the DRB back to the DRB for reconsideration. Reconsiderations shall only be allowed when there is new evidence to present. Any such appeal will be considered by the DRB only if submitted within the 30 day time limit specified for response to the DRB's written report. Each party may submit only one appeal regarding any individual DRB recommendation.
9. If the State and the Contractor are able to resolve their dispute with the aid of the DRB's report, the State and Contractor shall promptly accept and implement the recommendations of the DRB.
10. No members who served on the DRB for this contract may be called as witnesses in arbitration proceedings which may arise from this contract, and all documents created by the DRB shall be inadmissible as evidence in subsequent arbitration proceedings, except the DRB's final written reports and minority reports on each issue brought before it.
11. A rejection of the DRB recommendation by either party may be considered by an arbitrator in any subsequent arbitration as grounds for awarding costs and reasonable attorney's fees to the prevailing party, as provided in Public Contract Code Section 10240.13.
12. The State and Contractor shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.
13. The DRB members shall have no claim against the State or the Contractor, or both, from any claimed harm arising out of the parties' evaluations of the DRB's report.

5-1.18 PAYMENTS

Attention is directed to Section 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications and these special provisions.

For the purpose of making partial payments pursuant to Section 9-1.06, "Partial Payments," of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be deemed to be the maximum value of said contract item of work which will be recognized for progress payment purposes.

Bridge Removal (Portion)	$17,000
Mobile Daily Diary Computer System	$70,000

After acceptance of the contract pursuant to Section 7-1.17, "Acceptance of Contract," of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for said item, will be included for payment in the first estimate made after acceptance of the contract.

In determining the partial payments to be made to the Contractor, only the following listed materials will be considered for inclusion in said payment as materials furnished but not incorporated in the work:

Bar reinforcing steel (Bridge)
Miscellaneous metal (Bridge)
Structural steel (Bridge)
Steel shell piling

5-1.19 RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

The location of the San Mateo-Hayward Bridge, Br. No. 35-0054 is within an area controlled by the Regional Water Quality Control Board. Regional Water Quality Control Board Order No. 94-098 has been issued covering work to be performed under this contract. The Contractor shall fully inform himself of all rules, regulations and conditions that may govern his operations in said area and shall conduct his work accordingly.

Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O.

Box 942874, Sacramento, California 94274-0001, Telephone No. (916)654-4490, and are available for inspection at the office of the District Director of Transportation at 111 Grand Avenue, Oakland, California.

Attention is directed to Sections 7-1.11, "Preservation of Property," and 7-1.12, "Responsibility for Damage," of the Standard Specifications.

The Contractor's attention is directed to the following conditions which are among those established by the Regional Water Quality Control Board in their Order for this project:

1. Overflow from barge loading is not allowed.

Any change in the above listed conditions proposed by the Contractor shall be submitted to the Engineer for transmittal to the Regional Water Quality Control Board for their approval. Changes shall not be implemented until approved in writing by the Regional Water Quality Control Board.

Attention is directed to Section 8-1.06, "Time of Completion," of the Standard Specifications. Days during which the Contractor's operations are restricted in the navigable channel by the requirements of this section, shall be considered to be nonworking days if these restrictions cause a delay in the current controlling operation or operations.

5-1.20 RELATIONS WITH ARMY CORPS OF ENGINEERS

An Army Corps of Engineers permit is applicable to this contract. The Contractor shall fully inform himself of the requirements of this permit as well as all rules, regulations, and conditions that may govern his operations and shall conduct his operations accordingly.

Copies of the permit may be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001,

Telephone No. (916)654-4490, and are available for inspection at the office of the District Director of Transportation at 111 Grand Avenue, Oakland, CA.

Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.01G, "Water Pollution," and 7-1.12, "Responsibility for Damage," of the Standard Specifications.

Any modifications to the permit which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the Army Corps of Engineers for their consideration.

When the Contractor is notified by the Engineer that a modification to the permit is under consideration, no work will be allowed which is inconsistent with the proposed modification until the Departments take action on the proposed modifications. Compensation for delay will be determined in accordance with Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Any modifications to any agreement between the Departments of Transportation and Army Corps of Engineers will be fully binding on the Contractor, and the provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

5-1.21 RELATIONS WITH BAY CONSERVATION AND DEVELOPMENT COMMISSION

An Bay Conservation and Development permit is applicable to this contract. The Contractor shall fully inform himself of the requirements of this permit as well as all rules, regulations, and conditions that may govern his operations and shall conduct his operations accordingly.

Copies of the permit may be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001, Telephone No. (916)654-4490, and are available for inspection at the office of the District Director of Transportation at 111 Grand Avenue, Oakland, CA.

Attention is directed to Sections 7-1.01, "Laws to be Observed," 7-1.01G and 7-1.12, "Responsibility for Damage," of the Standard Specifications.

Any modifications to the permit which are proposed by the Contractor shall be submitted in writing to the Engineer for transmittal to the Bay Conservation and Development for their consideration.

When the Contractor is notified by the Engineer that a modification to the permit is under consideration, no work will be allowed which is inconsistent with the proposed modification until the Departments take action on the proposed modifications. Compensation for delay will be determined in accordance with Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

Any modifications to any agreement between the Departments of Transportation Bay Conservation and Development will be fully binding on the Contractor, and the provisions of this section shall be made a part of every subcontract executed pursuant to this contract.

5-1.22 RELATIONS WITH UNITED STATES COAST GUARD

The location of the existing bridge work is adjacent to and across a navigable channel which is under the jurisdiction of the U.S. Coast Guard, Twelfth District, 630 Sansome Street, San Francisco, CA 94126.

Attention is directed to Sections 7-1.01, “Laws To Be Observed,” and 7-1.11, “Preservation of Property,” of the Standard Specifications.

The Contractor shall comply with all requirements of the U.S. Coast Guard with regard to the manner in which he conducts his operations and disposal of material. Any restriction of the channel and all navigation and warning lights shall be in accordance with regulations and subject to the approval of the U.S. Coast Guard. Copies of the Coast Guard Agreement can be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building 1120 N Street, P.O. Box 942874, Sacramento, CA 94274-0001, Telephone No. (916) 654-4490, and are available for inspection at the office of the District Director of Transportation at 111 Grand Avenue, Oakland, CA.

Should the Contractor during the progress of the work, sink, lose, or throw overboard any material, plant or machinery, which may be dangerous to or which will obstruct navigation, he shall forthwith recover or remove such obstruction. The Contractor shall give immediate notice to the proper authorities and if required shall mark or buoy such obstructions until they are removed.

Material from the work shall not be disposed of in the channel.

The Contractor shall keep proper warning lights each night between the hours of sunset and sunrise upon all floating equipment and falsework connected with the work and upon all buoys which are of a size and in such location as to endanger or obstruct navigation.

All work shall be so conducted that he free navigation of the waterway shall not be interfered with and the present navigable depths and channel width shall not be impaired.

5-1.23 AREAS FOR CONTRACTOR'S USE

Attention is directed to the requirements specified in Section 7-1.19, "Rights in Land and Improvements," of the Standard Specifications and these special provisions.

The highway right of way shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the right of way, or allow others to occupy the right of way, for purposes which are not necessary to perform the required work.

There are no State-owned parcels adjacent to the right of way for the exclusive use of the Contractor within the contract limits. The Contractor shall secure at his own expense any area required for plant sites, storage of equipment or materials, or for other purposes.

No area is available within the contract limits for the exclusive use of the Contractor. However, temporary storage of equipment and materials on State property may be arranged with the Engineer, subject to the prior demands of State maintenance forces and to all other contract requirements. Use of the Contractor's work areas and other State-owned property shall be at the Contractor's own risk, and the State shall not be held liable for any damage to or loss of materials or equipment located within such areas.

The Contractor shall make his own arrangements to obtain electrical power, water, compressed air or other utilities required for his operations and shall make and maintain the necessary service connections at his own expense. The Contractor will not be permitted to use existing State utilities on the bridge or within the contract limits.

The Contractor shall remove all equipment, materials, and rubbish from the work areas and other State-owned property which he occupies and shall leave the areas in a presentable condition, in conformance with the provisions in Section 4-1.02, "Final Cleaning Up," of the Standard Specifications.

The Contractor shall secure at his own expense any area required for storage of plant, equipment and materials, or for other purposes if sufficient area is not available to him within the contract limits.

5-1.24 UTILITIES

The Contractor may use electrical power, water, and compressed air from existing State outlets within the contract limits, where such utilities exist, free of charge for contract operations provided that the Contractor does not misuse such services and provided that such utility services are in service and are not required by the State for other purposes, and subject to the provisions of "Cooperation" of these special provisions.

The Contractor will not be allowed to use the existing scaffoldings on the bridge. The scaffoldings are for the exclusive use of maintaining the bridge.

5-1.25 SANITARY PROVISIONS

State sanitary facilities will not be available for use by the Contractor's employees.

5-1.26 BRIDGE TOLLS

Toll-free passage on the San Mateo-Hayward Bridge will be granted only for cars, trucks and special construction equipment which are clearly marked on the exterior with the Contractor's identification and which are being operated by the Contractor exclusively for the project and for the purpose of transporting materials and workmen directly to and from the jobsite.

The Contractor shall make application to the Engineer in advance for toll-free passage. The Contractor will be held accountable for the proper use of all passes issued, and upon completion of the work, shall return all unused passes.

Attention is directed to Section 23302, "Evasion of Toll," of the Vehicle Code.

5-1.27 ACCESS TO JOBSITE

Prospective bidders may make arrangements to visit the jobsite by contacting the Bridge Manager, San Mateo-Hayward Bridge, at telephone (510)286-1369.

5-1.28 DRAWINGS

Attention is directed to Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and these special provisions.

When working drawings are required by these special provisions, the drawings shall be submitted in accordance with the provisions in Section 55-1.02, "Drawings," of the Standard Specifications and the following:

1. Working drawings shall be submitted to the Engineer.
2. Working drawings shall not exceed 22" x 34" in size.
3. Microfilms are required of all approved shop drawings and shall be only a 24x reduction.

5-1.29 PERMITS AND LICENSES

Attention is directed to Section 7-1.04, "Permits and Licenses," of the Standard Specifications and these special provisions.

The Department has obtained the following permits for this project:

Army Corps of Engineers
Bay Conservation and Development Commission
Regional Water Quality Control Board
U. S. Coast Guard

Copies of these permits can be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, P.O. Box 942874, Sacramento, California 94274-0001, Telephone No. (916) 654-4490, or may be seen at the office of the District Director of Transportation at 111 Grand Avenue, Oakland.

Full compensation for conforming to the requirements in these permits shall be considered as included in the contract prices paid for the various items of work and no additional compensation will be allowed therefor.

5-1.30 AERIALLY DEPOSITED LEAD, GENERAL

Aerially Deposited Lead is defined as lead deposited within the Department of Transportation (Caltrans) Right of Way primarily due to vehicle emissions. Aerially deposited lead contamination has been discovered through testing of materials from the eastern on-land portion within project limits.

Attention is directed to "Material with Aerially Deposited Lead" under "Earthwork" of these special

provisions regarding the handling of material with aerially deposited lead.

Portions of the Site Investigation Report are included in the "Material Information Handout." The report entitled "Site Investigation Report State Route 92 and 238 Alameda County, California" is available for inspection at the Department of Transportation, Duty Senior's Desk, 111 Grand Avenue, Oakland, California, (510) 286-5209. Materials with total levels of lead greater than the Total Threshold Limit Concentration (TTLC) of 1000 milligrams per kilogram (mg/kg) or solubility levels, as established by the California Waste Extraction Test (WET), greater than the Solubility Threshold Limit Concentration (STLC) of 5 milligrams per liter (mg/l) shall be considered hazardous pursuant to California Code of Regulations, Title 22.

Excavation, transportation, placement and handling of soils containing aerially deposited lead shall result in no visible dust. The Contractor shall have a water truck available at all times while performing earthwork, excavation or grubbing activities in work areas containing aerially deposited lead at hazardous levels.

Once the Contractor has completed the placement of materials containing aerially deposited lead, in accordance with the plans, as specified in the Standard Specifications and these special provisions, the Contractor shall have no responsibility for such materials in place and shall not be obligated for further cleanup, removal or remedial actions for such materials.

Excavation, reuse, and disposal of material with aerially deposited lead shall be in accordance with all rules and regulations of agencies including, but not limited to, the following:

United States Department of Transportation (USDOT)

United States Environmental Protection Agency (USEPA)

California Department of Health Services

California Environmental Protection Agency (Cal-EPA)

Department of Toxic Substances Control (DTSC), Region 2

Integrated Waste Management Board

Regional Water Quality Control Board (RWQCB), Region 2

State Air Resources Control Board

Bay Area Air Quality Management District (BAAQMD)

California Division of Occupational Safety and Health Administration (CAL-OSHA)

The Contractor shall prepare a project specific Health and Safety Plan to prevent or minimize exposure to potentially hazardous levels of lead. The Contractor shall assume that lead concentrations in the work zone are as stated previously in this section "Aerially Deposited Lead, General." The Contractor's attention is directed to Title 8, California Code of Regulations, Section 5192 (b) (4) (B) and the Occupational Safety and Health Guidance Manual published by National Institute of Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), and USEPA for elements of the site safety plan. The Health and Safety Plan shall contain as a minimum but not be limited to: identification of key personnel for the project, job hazard analysis for work assignments, summary of risk assessment, air monitoring plan, personal protective equipment, delineation of work zones on-site, decontamination procedures, general safe work practices, security measures, emergency response plans and worker training.

The Health and Safety Plan shall utilize monitoring and exposure standards based on Construction Standards of Title 8, California Code of Regulations Section 1532.1 and as a minimum shall contain a description of activities, specific means employed to achieve compliance, report of the technology considered, air monitoring, schedule for implementation of the program, a work practice program, administrative control schedule, description of arrangements for information transfer between contractors concerning potential exposure to lead and other relevant information. The Health and Safety plan shall be approved by the Contractor's Certified Industrial Hygienist before submission to the Engineer. The plan shall be submitted to the Engineer at least 15 days prior to beginning any work in areas containing aerially deposited lead.

Prior to performing any work in areas containing lead, personnel who have no prior training or are not current in their training status, including State personnel, shall complete a safety training program provided by the Contractor, which meets the requirements of Title 8, California Code of Regulations, Section 1532.1.

Personal protective equipment, training, and medical surveillance required by the Contractor's Health and Safety Plan shall be supplied to State personnel by the Contractor. The number of State personnel will be 5.

The Contractor shall procure all permits and licenses, pay all charges and fees, except as otherwise specifically provided in these special provisions, and give all notices necessary and incidental to the due and lawful prosecution of the work.

Full compensation for conforming to the requirements of this section, except as otherwise specifically provided in these special provisions, shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

5-1.31 CONTAMINATED MATERIAL, GENERAL

Attention is directed to "Earthwork" of these special provisions regarding the removal and disposal of contaminated material.

Contaminated material have been discovered through testing within the project limits. Portions of the test results are included in the "Materials Information Handout." The complete report entitled "Sediment Investigation San Mateo-Hayward Bridge Seismic Retrofit

Project " and "Sediment Sampling and Analysis San Mateo-Hayward Bridge Seismic Retrofit Project" are available for inspection at the Department of Transportation, Duty Senior's Desk, 111 Grand Avenue, Oakland, California, (510) 286-5209. The levels of contamination are considered to be designated waste as defined by State of California regulations.

Temporary stockpiling of contaminated material on land for dewatering purposes will be allowed for 90 days beginning on the first day of transport to land. A stockpiling plan conforming to Department of Toxic Substances Control (DTSC) standards shall be submitted to the Engineer for review and approval at least 15 calendar days prior to performing any stockpiling. This plan shall be addressed in storm water pollution prevention plan. Temporary stockpiling of material shall be considered at and for the convenience of the Contractor. Full compensation for stockpiling of material, including removing said stockpile shall be considered as included in the contract price paid per cubic yard for the various items involved with contaminated material of the types listed in the Engineer's estimate and no separate payment will be made therefor. No contaminated material shall be deposited on public roads. The Contractor shall indemnify the State from any costs due to spillage during the transport of the contaminated material to the disposal facility.

All contaminated material on exteriors of transport vehicles shall be removed and placed either into the current transport vehicle or the excavation prior to the vehicle leaving the exclusion zone.

The Contractor shall monitor the air quality continuously during clean out operations at all locations containing contaminated material.

APPLICABLE RULES AND REGULATIONS.-- Excavation, transport and disposal of contaminated material shall be in accordance with the rules and regulations of the following agencies:

United States Department of Transportation (USDOT)

United States Environmental Protection Agency (USEPA)

California Environmental Protection Agency (CAL-EPA)

1. Department of Toxic Substance Control (DTSC)
2. Integrated Waste Management Board
3. Regional Water Quality Control Board, Region 2 (RWQCB)
4. State Air Resources Board

Bay Area Air Quality Management District (BAAQMD)

California Division of Occupational Safety and Health Administration (CAL-OSHA)

PERMITS AND LICENSES.--The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including registration for transporting vehicles carrying the contaminated material and the hazardous material. The California Environmental Quality Act (CEQA)of 1970 (Chapter 1433, Stats. 1970), as amended may be applicable to permits, licenses and authorizations which the Contractor shall obtain from all agencies in connection with performing the work of the contract. The Contractor shall comply with the provisions of said statutes in obtaining such permits, licenses and other authorizations.

The Engineer will obtain the Environmental Protection Agency Generator Identification No. and Board of Equalization Identification Number as the State is the Generator.

SITE SPECIFIC HEALTH, SAFETY AND WORK PLAN.--The Contractor shall prepare a detailed Health, Safety and Work Plan for all site personnel in accordance with the DTSC and CAL-OSHA regulations. The Health, Safety and Work Plan shall include a plot plan indicating the exclusion zones, contaminant reduction (decontamination zones) and support zones in accordance with California Code of Regulations (CCR), Title 8 , an air monitoring plan, site clean up procedures, and physical barrier; and shall be submitted at least 15 working days prior to beginning any work for review and acceptance by the Engineer. Prior to submittal, the Contractor shall have the Health, Safety and Work Plan approved by a Civil Engineer, registered in the State of California and by a Certified Industrial Hygienist .

SAFETY.--Prior to performing any work at the locations containing material classified as contaminated, all personnel, including State Personnel, shall complete a safety training program which meets 29 CFR 1910.120 and 8 CCR 5192 covering the potential hazards as identified. The training shall be provided by the Contractor. The Contractor shall provide a certification of completion of the Safety Training Program to all personnel. Any personal protective equipment required by the Contractor's Health, Safety and Work Plan for personnel working within the exclusion zone will be supplied to State personnel by the Contractor. The number of State personnel requiring the above mentioned safety training program and personal protective equipment will be 5.

The decontamination area shall be located outside of the exclusion zone. Water from decontamination procedures shall be collected and disposed of at an appropriate disposal site by the Contractor. Non-reusable protective equipment, once used by any personnel, including State personnel, shall be collected and disposed of at an appropriate disposal site by the Contractor. Temporary 6-foot chain link security fence shall be installed to surround and secure the exclusion zone.

SAMPLING AND ANALYSIS.--The Contractor shall test the material to be cleaned out of the open end of steel shells for acceptance requirements put forth by the disposal facility. Attention is directed to "Site Investigation" elsewhere in these special provisions for the sampling and analysis procedures.

MEASUREMENT AND PAYMENT.--Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work affected by this section and no additional compensation will be allowed therefor.

SECTION 6. (BLANK)

SECTION 7. (BLANK)

SECTION 8. MATERIALS

SECTION 8-1. MISCELLANEOUS

8-1.01 PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

The Department maintains a trade name list of approved prequalified and tested signing and delineation materials and products. Approval of prequalified and tested products and materials shall not preclude the Engineer from sampling and testing any of the signing and delineation materials or products at any time.

Said listing of approved prequalified and tested signing and delineation materials and products cover the following:

MATERIALS and PRODUCTS

Temporary pavement markers
Striping and pavement marking tape
Pavement markers, reflective and non-reflective
Flexible Class 1 delineators and channelizers
Railing and barrier delineators
Sign sheeting and base materials
Reflective sheeting for barricades
Reflective sheeting for channelizers
Reflective sheeting for markers and delineators
Reflective sheeting for traffic cone sleeves
Reflective sheeting for barrels and drums

None of the above listed signing and delineation materials and products shall be used in the work unless such material or product is listed on the Department's List of Approved Traffic Products. A Certificate of Compliance shall be furnished as specified in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for signing and delineation materials and products. Said certificate shall also certify that the signing and delineation material or product conforms to the prequalified testing and approval of the Department of Transportation, Division of Traffic Operations and was manufactured in accordance with the approved quality control program.

Materials and products will be considered for addition to said approved prequalified and tested list if the manufacturer of the material or product submits to the Division of Traffic Operations a sample of the material or product. The sample shall be sufficient to permit performance of all required tests. Approval of such materials or products will be dependent upon a determination as to compliance with the specifications and any test the Department may elect to perform.

The following is a listing of approved prequalified and tested signing and delineation materials and products:

PAVEMENT MARKERS, PERMANENT TYPE

REFLECTIVE

Adelite (4"x4")
Apex (4"x4")
Pavement Markers, Inc., "Hye-Lite" (4"x4")
Ray-O-Lite, Models SS, RS, and AA (4"x4")
Ray-O-Lite, Models 2002 (2.4"x4.7")
Stimsonite, Model 88 (4" x4")

REFLECTIVE WITH ABRASION RESISTANT SURFACE

Ray-O-Lite "AA" ARS (4" x4")(Not for use in recessed applications)
Ray-O-Lite Mod. 2002 ARS (2.2"x4.7")
Stimsonite, Model 911 (4"x4")(Not for use in recessed applications)
Stimsonite, Model 944 SB (2"x4")
Stimsonite, Model 948 (2.3"x4.7")
Stimsonite, Model 953 (2.75"x4.5")(Not for use in recessed applications)

NON-REFLECTIVE FOR USE WITH EPOXY OR BITUMEN ADHESIVE

Apex Universal (Ceramic)
Highway Ceramics Inc. (Ceramic)
Zumar, TM40W/Y (Polyester)

NON-REFLECTIVE FOR USE WITH BITUMEN ADHESIVE ONLY

Apex Universal, Model 929 (ABS)
Elgin Molded Plastics, "Empco-Lite" Model 900 (ABS)
Hi-Way Safety Inc., Models P20-2000W and 2001Y (ABS)
Interstate Sales, "Diamond Back" (ABS)
Loomis Plastics, D-Dot (ABS)
Pavement Markers Inc., (Marker Supply) - Models A1107 and AY1108 (ABS)
Road Creations, Model RCB4NR (Acrylic)

PAVEMENT MARKERS, TEMPORARY TYPE

TEMPORARY MARKERS FOR LONG TERM DAY/NIGHT USE (6 Months or less)

Apex Universal, Model 924 (4"x4")
Elgin Molded Plastics, "Empco-Lite" Model 901 (4" Round)
Highway Technologies, Megalites (4"x4")
Road Creations, Model R41C (4"x4")

TEMPORARY MARKERS FOR SHORT TERM DAY/NIGHT USE (14 days or less)

Apex Universal, Model 932
Davidson Plastics, Models TOM (Standard) with Reflexite PC-1000, or (WZ) with Reflexite AC-1000 Sheeting
Hi-Way Safety Inc., Model 1280/1281 with Reflexite PC-1000
Stimsonite, Model 300 "Temporary Overlay Marker"

TEMPORARY MARKERS FOR SHORT TERM DAY/NIGHT USE (14 days or less at seal coat locations)

Apex Universal, Model 932
Davidson Plastics, Models TRPM (Standard) with Reflexite PC-1000, or (WZ) with Reflexite AC-1000 Sheeting
Davidson Plastics, Models "HH" (High Heat) TRPM (Standard) with Reflexite PC-1000, or (WZ) with Reflexite AC-1000 Sheeting
Hi-Way Safety Inc., Model 1280/1281 with Reflexite PC-1000
Stimsonite, Model 301 Chip Seal Marker

STRIPING AND PAVEMENT MARKING MATERIAL

PERMANENT TRAFFIC STRIPING AND PAVEMENT MARKING TAPE

(For use on high and low volume roadways)
Advanced Traffic Marking, Series 300 and 400
Brite-Line, Series 1000
Swarco Industries, "Director 60"
3M, "Stamark" Series 380, A420, A440 and 5730
(For use on low volume roadways only)
3M, "Stamark" Series A320 Bisymetric

TEMPORARY REMOVABLE STRIPING AND PAVEMENT MARKING TAPE

Advanced Traffic Marking, ATM Series 200
Brite-Line, Series 100
P.B. Laminations, Aztec, Grade 102
Swarco Industries, "Director-2"
3M, "Stamark" Brand, Detour Grade, Series 5710 and A620

PREFORMED THERMOPLASTIC

Flint Trading, "Premark""
Pavemark, "Hotape"

REMOVABLE TRAFFIC PAINT

Belpro, Series 250/252 and No. 93 Remover

CLASS 1 DELINEATORS

ONE-PIECE DRIVEABLE FLEXIBLE TYPE, 1200 mm (48")

Carsonite, Curve-Flex CFRM-400
Carsonite, Roadmarker CRM-375
Davidson Plastics, "Flexi-Guide 400 and 566"
GreenLine Model HWDI-66
GreenLine Model CGDI-66

SPECIAL USE FLEXIBLE TYPE, 1200 mm (48")

Carsonite, "Survivor" with 18" U-Channel anchor
FlexStake, H-D
GreenLine HWD with 18" soil anchor
GreenLine CGD with 18" soil anchor
Safe-Hit with 8" pavement anchor (SH248-GPR and SHAI-08-PI)
Safe-Hit, with 15" soil anchor (SHA5-15C-GL)
Safe-Hit, with 18" soil anchor (SH248-GPR and SHAI-18C-PL)

SURFACE MOUNT FLEXIBLE TYPE, 1200 mm (48")

Bent Manufacturing Co., "Masterflex" Model MF-180EX-48"
Carsonite, "Super Duck II"
FlexStake, Surface Mount H-D

CHANNELIZERS

SURFACE MOUNT TYPE 900 mm (36")

Bent Manufacturing Co., "Masterflex" Models MF-360-36 (Round) and MF-180-36" (Flat)
Carsonite, "Super Duck" (Flat SDF-436, Round SDR-336)

Carsonite, Super Duck II "The Channelizer"
FlexStake, Surface Mount H-D
GreenLine SMD-36
Repo, Models 300 and 400
Safe-Hit, Guide Post, Model SH236SMA, with glue down base
The Line Connection, "Dura-Post" Model DP36-3C

TYPE "K" OBJECT MARKERS 450 mm (18")

Carsonite, Model SMD-615
Repo, Models 300 and 400
Safe-Hit, Model SH718SMA
The Line Connection, Model DP21-4K (Vertical configuration only)

TYPE "Q" OBJECT MARKERS, 450-600 mm (18-24")

Carsonite, Super Duck II
Repo, Models 300 and 400
Safe-Hit, Models SH824SMA--WA and SH824GP3--WA
The Line Connection, Model "DP21-4Q"

CONCRETE BARRIER MARKERS (For use to the left of traffic.**)**

IMPACTABLE TYPE

Astro Optics “FB”
Davidson Plastics, Model PCBM-12
Duraflex Corp., "Flexx 2020" and "Electriflexx"

NON-IMPACTABLE TYPE

Astro-Optics, JD Series
Stimsonite, Model 967 (with 3 1/4" Acrylic cube corner reflector)
Stimsonite, Model 967LS
Vega Molded Products, Models GBM and JD

THRIE BEAM BARRIER MARKERS (For use to the left of traffic**.)**

Duraflex Corp., "Railrider"
Davidson Plastics, "Mini" (3"x10")

CONCRETE BARRIER DELINEATORS 400 mm (16"). **(**For use to the right of traffic. When mounted on top of barrier, places top of reflective element at 48" [1200 mm]**)**

Davidson Plastics, Model PCBM T-16
Safe-Hit, Model SH216RBM

SOUND WALL DELINEATOR (On vertical surface, places top of reflective element at 48" [1200 mm].**)**

Davidson Plastics, PCBM S-36

GUARD RAILING DELINEATOR 685 mm (27") Wood Post Type. (For use to the right or left of traffic. Places reflective element at 48" [1200 mm].**)**

Carsonite, Model 427
Davidson Plastics FG 427 and FG-527
GreenLine GRD 27-inch
Safe-Hit, Model SH227GRD

GUARD RAILING DELINEATOR 685 mm (27") Steel Post Type. (For use to the right or left of traffic. Places reflective element at 48" [1200 mm].**)**

Carsonite, Model CFGR-327 with CFGRBK300 Mounting Bracket

REFLECTIVE SHEETING FOR:

CHANNELIZERS, BARRIER MARKERS AND DELINEATORS

3M, High Intensity (Long Term)
Reflexite, PC-1000, Metalized Polycarbonate (Long Term)
Reflexite, AC-1000, Acrylic (Long Term)
Reflexite, AP-1000, Metalized Polyester (Short Term)
Stimsonite, Series 4500 (For Carsonite CurveFlex and Roadmarker delineators only)

TRAFFIC CONES

330 mm (13") Sleeves
Reflexite SB (Polyester), Vinyl or "TR" (Semi-transparent)

100 and 150 mm (4" and 6") Sleeves
3M Series 3840
Reflexite Vinyl

BARRELS AND DRUMS

Reflexite, "Super High Intensity"
3M Series 3810

BARRICADES

Type I, Engineer Grade
American Decal, Adcolite
Avery Dennison, 1500/1600
Nikkalite, 8100 Series

3M, Scotchlite, Series CW

SIGNS

Type II, Super Engineer Grade (State-Furnished Signs Only)
Avery Dennison, "Fasign" 2500 Series
Kiwalite, Type II
Nikkalite 1800 Series

Type III, High Performance
3M, High Intensity, Series 3870

Type IV, High Performance
Stimsonite, Series 4200

Type VI, Roll-Up Signs
Reflexite, Vinyl
Note: Sheeting Types conforming to the requirements of ASTM Designation: D 4956-93B

SIGN SUBSTRATE FOR CONSTRUCTION AREA SIGNS

Aluminum
Fiberglass Reinforced Plastic (FRP)
Sequentia, "Polyplate"
Fiber-Brite

8-1.02 STATE-FURNISHED MATERIALS

Attention is directed to Section 6-1.02, "State-Furnished Materials," of the Standard Specifications and these special provisions.

The following materials will be furnished to the Contractor:

Seismic Instrumentation.

8-1.03 MEASUREMENT OF QUANTITIES

Attention is directed to the provisions in Section 9-1.01, "Measurement of Quantities," of the Standard Specifications and these special provisions.

The following is added after the third paragraph in Section 9-1.01, "Measurement of Quantities," of the Standard Specifications:

All elements of the material plant controller which affect the accuracy or delivery of data shall be made available for the application of security seals. These devices will be inspected and all adjusting elements sealed prior to the first production of materials for the contract. The security seals will be furnished by the Engineer. Material production shall cease when alteration, disconnection, or otherwise manipulation of the security seals occur and production shall not resume until the device is inspected and resealed by the Engineer.

Within the limits of the project or at the plant site, the Contractor shall provide a vehicle platform scale of sufficient weighing capacity to check full production sized batches from all proportioning scales to be used in producing materials for the project. Such vehicle platform scale shall conform to the provisions in Section 9-1.01, "Measurement of Quantities," of the Standard Specifications.

Full compensation for furnishing and operating the vehicle platform scale required to check proportioning scales shall be considered to be included in the contract prices paid for the various contract items of work requiring the proportioning scales and no separate payment will be made therefor.

SECTION 8-2. CONCRETE

8-2.01 TRANSPORTING MIXED CONCRETE

The ninth and tenth paragraphs in Section 90-6.03, "Transporting Mixed Concrete," of the Standard Specifications are amended to read:

Each load of ready-mixed concrete delivered at the jobsite shall be accompanied by a ticket showing the mix identification number, non-repeating load number, date and time at which the materials were batched, the total amount of water (gallons) added to the load and for transit-mixed concrete, the reading of the revolution counter at the time the truck mixer is charged with cement. This ticket shall also show the actual scale weights (pounds) for the ingredients batched or the calculated portland cement concrete volume (cubic yards). Theoretical or target batch weights shall not be used as a substitute for actual scale weights. When showing a calculated portland cement concrete volume on the delivery ticket, the Contractor shall maintain and have available a record of the following information for each batched load:

1. Mix identification number; specific to the contract.
2. Load number; shall match the load number on the delivery ticket.
3. Date and time the load was batched.
4. Actual batch weight (pounds) for each ingredient.
5. Any water (gallons) added at the plant, in addition to the water proportioned for the batch.

When requested, the Contractor shall submit the recorded information for calculated portland cement concrete volumes to the Engineer. The information shall be provided in printed form, or if acceptable to the Engineer, data may be submitted on a 3.5-inch diskette. If a diskette is submitted, the data shall be in a tab-delimited text format or data interchange

format (DIF), readable in both the MS-DOS and MACINTOSH systems.

8-2.02 ADMIXTURES

Section 90-4.02, "Materials," of the Standard Specifications is amended by adding the following material to those listed:

Silica Fume—ASTM Designation: C 1240, with reduction of mortar expansion of 80 percent, minimum, using the portland cement from the proposed mix design.

The first subparagraph of the first paragraph in Section 90-4.05, "Optional Use of Chemical Admixtures," of the Standard Specifications is deleted and the second subparagraph of the first paragraph in Section 90-4.05 is amended to read:

When a water-reducing admixture or a water-reducing and retarding admixture is used, the cement content specified or ordered may be reduced by a maximum of 5 percent by weight except that the resultant cement content shall be not less than 470 pounds per cubic yard.

Section 90-4.08, "Required Use of Mineral Admixtures," of the Standard Specifications is amended by adding the following before the first paragraph:

Mineral admixture will be required in the manufacture of concrete containing aggregate that is determined to be "deleterious" or "potentially deleterious" as specified in Section 90-2.02, "Aggregates". The calcium oxide content of mineral admixtures shall not exceed 10 percent. Where Section 90-1.01, "Description," specifies a maximum cement content in pounds per cubic yard, the total weight of portland cement and mineral admixture per cubic yard shall not exceed the specified maximum cement content. The concrete shall conform to one of the following:

1. The concrete containing "Type IP (MS) Modified" cement shall conform to the provisions in Section 90-2.01, "Portland Cement," except that the mineral admixture used in the manufacture of "Type IP (MS) Modified" cement shall have a calcium oxide content not exceeding 2 percent, and an alkali content not exceeding 4 percent. The amount of cement shall be sufficient to satisfy the specified minimum cement content.

2. When the calcium oxide content in a mineral admixture does not exceed 2 percent, the portland cement in the concrete shall conform to the provisions in Section 90-2.01, "Portland Cement," with an amount not less than 85 percent of the amount required to satisfy the specified minimum cement content. The concrete shall also contain the mineral admixture in an amount not less than 15 percent, by weight, of the amount of cement required to satisfy the specified minimum cement content. The mineral admixture shall conform to the requirements in ASTM Designation: C 618, Class N or F, except that the alkali content shall not exceed 4 percent.

3. When the calcium oxide content in a mineral admixture is between 2 percent and 10 percent, the portland cement in the concrete shall conform to the provisions in Section 90-2.01, "Portland Cement," with an amount not less than 85 percent of the amount required to satisfy the specified minimum cement content. The concrete shall also contain the mineral admixture in an amount not less than 30 percent, by weight, of the amount of cement required to satisfy the specified minimum cement content. The mineral admixture shall conform to the requirements in ASTM Designation: C 618, Class N or F, except that the alkali content shall not exceed 4 percent.

4. The portland cement in the concrete shall conform to the provisions in Section 90-2.01, "Portland Cement," with an amount required to satisfy the specified minimum cement content. The concrete shall also contain a mineral admixture in an amount not less than 10 percent, by weight, of the amount of cement required to satisfy the specified minimum cement content. The mineral admixture shall conform to these provisions for silica fume.

SECTION 8-3. WELDING

8-3.01 FIELD WELDING QUALITY CONTROL

Field welding quality control shall conform to the requirements in the AWS welding codes, Standard Specifications and these special provisions.

Wherever reference is made to the following AWS welding codes in the Standard Specifications, on the plans or in these special provisions, the year of adoption for these codes shall be as listed:

AWS Code	Year of Adoption
D1.1	1996
D1.4	1992
D1.5	1995

All requirements of the AWS welding codes shall apply unless specified otherwise in the Standard Specifications, on the plans or in these special provisions. Wherever the abbreviation AWS is used it, it shall be equivalent to the abbreviations ANSI/AWS or ANSI/AASHTO/AWS.

Welding performed at other than an established and permanent fabrication facility shall be considered field welding.

When any type of field welding, including that of steel piles, bar reinforcement, steel structures, column casings and miscellaneous metal, is to be performed, the Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of all field welding, including materials and workmanship, performed by the Contractor and all subcontractors.

The QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

All welding inspection personnel and nondestructive testing firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project.

The QCM shall be the sole individual responsible to the Contractor for submitting and receiving all correspondence and required submittals and reports regarding field welding, to and from the Engineer.

Prior to submitting the Quality Control Plan required herein, a pre-welding meeting shall be held between the Engineer, Contractor and any welding subcontractors to be used in the work to discuss the requirements for the Quality Control Plan.

At least 7 calendar days prior to performing any field welding, the Contractor shall submit to the Engineer for approval, a separate Quality Control Plan (QCP) for each item of work for which field welding is to be performed. The plan shall include the following:

1. The name of the welding firm and the nondestructive testing firm to be used;
2. A complete Quality Assurance Manual (QAM) prepared by the nondestructive testing firm that shall include equipment, testing procedures, the Written Practice of the nondestructive testing firm, and names and qualifications of all personnel to be used;
3. The name of the QCM and the names and qualifications of Quality Control Inspectors and Assistant Quality Control Inspectors to be used;
4. The methods and frequencies for performing all required quality control procedures as required by the specifications including:

    (a) all visual inspections;
    (b) all nondestructive testing including radiographic geometry, penetrameter selection and shims, film quality, film processing, radiograph identification and marking system, and film interpretation and reports; and
    (c) calibration procedures and calibration frequency for all equipment;

5. A system for the identification and tracking of all welds, nondestructive testing and any required repairs, and a procedure for the reinspection of any repaired welds. The system shall have provisions for 1) permanently identifying each weld and the person who performed the weld and 2) placing all identification and tracking information on each radiograph;
6. All weld repair procedures;
7. The welding procedure specification (WPS), including documentation of any required Procedure Qualification Record (PQR) tests performed to qualify the specification and verification of the tests;
8. Documentation of all certifications for welders who will be used, including all tests performed to qualify the welders and verification of the tests; and
9. One copy each of all applicable AWS welding codes that will be used. These codes shall become the permanent property of the Department.

The Engineer shall have 7 calendar days to review the QCP submittal after a complete plan has been received. No field welding shall be performed until the QCP is approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the QCP, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Additional welders, not listed in the approved QCP, shall not be used in the work until an amended QCP, showing documentation of all certifications for these welders, including all tests performed to qualify these welders, verification of the tests, and an updated system for the identification and tracking of all welds, is submitted to, and approved in writing by the Engineer. The Engineer shall have 2 working days to complete the review of the amended QCP.

The Contractor shall submit to the Engineer 3 copies of the approved QCP and 3 copies of any amended QCPs.

A daily production log for field welding shall be kept by the QCM for each day that field welding is performed. The log shall clearly indicate the locations of all welding, and shall include the welders' names, amount of welding performed, and any testing or repair work performed, at each location. The daily report from each Quality Control Inspector shall also be included in the log.

It is expressly understood that the Engineer's approval of the Contractor's QCP shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work in conformity with the

requirements of the plans and specifications. The Engineer's approval shall not constitute a waiver of any of the requirements of the plans and specifications nor relieve the Contractor of any obligation thereunder, and defective work, materials and equipment may be rejected notwithstanding approval of the QCP.

The following items shall be submitted in writing to the Engineer within 7 calendar days following the performance of any field welding:

1. Reports of all visual weld inspections and nondestructive testing;
2. Radiographs and radiographic reports;
3. Documentation that the Contractor has evaluated all radiographs, corrected any deficiencies, and radiographed any required additional repair welds; and
4. Daily production log.

All reports regarding nondestructive testing, including radiographs, shall be signed by both the nondestructive testing technician and the person that performed the review, and then submitted directly to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or type written next to all signatures.

The Engineer shall review the above items to determine if the Contractor is in conformance with the QCP. The Engineer shall be allowed 7 calendar days to review the above items and respond in writing after all the required items have been received. Prior to receiving notification from the Engineer of the Contractor's conformance with the QCP, the Contractor may encase in concrete or cover any field welds for which the above items have been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Any material not conforming to these requirements will be subject to rejection. Should the Contractor elect to wait to encase or cover any field welds pending notification by the Engineer, and should the Engineer fail to complete the review and provide notification within this time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in notification, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Sections 6.1.1 through 6.1.3.3 of AWS D 1.1, Sections 7.1.1 and 7.1.2 of AWS D 1.4, and Sections 6.1.1.1 through 6.1.3.3 of AWS D 1.5 are replaced with the following:

> Quality Control (QC) is the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing prior to welding, during welding and after welding as specified in this section and additionally as necessary to ensure that materials and workmanship conform to the requirements of the contract documents.
>
> The Quality Control (QC) Inspector is the duly designated person who performs inspection, testing, and quality matters for all field welding.
>
> Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.
>
> All QC Inspectors shall be responsible for quality control acceptance or rejection of materials and workmanship, and shall be currently certified as AWS Certified Welding Inspectors (CWI) in accordance with the provisions of AWS QC1, "Standard and Guide for Qualification of Welding Inspectors."
>
> The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in accordance with the provisions of AWS QC1, "Standard and Guide for Qualification of Welding Inspectors," or has equivalent qualifications. The QC Inspector shall monitor the Assistant QC Inspector's work, and shall be responsible for signing all reports.
>
> When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

Section 6.14.7, "Personnel Qualification," of AWS D 1.1, Section 7.7.6, "Personnel Qualification," of AWS D 1.4 and Section 6.1.3.4, "Personnel Qualification," of AWS D 1.5 are amended to read:

> Personnel performing nondestructive testing shall be qualified in accordance with the current edition of the American Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A and the Written Practice of the nondestructive testing firm. Only individuals qualified for NDT Level II shall perform nondestructive testing and prepare written reports.

Section 6.5.4, "Scope of Examination," of AWS D 1.1 and Section 7.5.4 of AWS D 1.4 are amended to read:

> The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code are met.

Section 6.5.4, of AWS D 1.5 is amended to read:

> The QC Inspector shall inspect and approve the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code are met. The

QC Inspector shall examine the work to make certain that it meets the requirements of section 3 and 9.21. The size and contour of welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities should be aided by strong light magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be approved when approved by the Engineer.

The Engineer shall have the authority to verify the qualifications of any welder, Quality Control Inspector, or NDT personnel to specified levels by retests or other means.

A sufficient number of QC Inspectors shall be provided to ensure continuous inspection when any field welding is being performed. Continuous inspection, as a minimum, shall include (1) having QC Inspectors continually present on all shifts when any field welding is being performed, or (2) having a QC Inspector within such close proximity of all welding operations that inspections by the QC Inspector of each operation shall not lapse for a period exceeding 30 minutes.

Inspection and approval of the joint preparation, assembly practice, welding techniques, and performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day that field welding is performed.

The QC Inspector shall provide reports to the QCM on a daily basis for each day that field welding is performed.

When any welding problems or deficiencies are discovered, the Engineer shall be notified immediately of them and also of the proposed repair procedures to correct them. The Engineer shall have 2 working days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the proposed repair procedures, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

When field welding is performed using joint details that are not prequalified by the applicable AWS codes, all welders using these details shall perform a qualification test plate using the approved WPS variables and the joint detail to be used in production. The test plate shall be the maximum thickness to be used in production. The test plate shall be mechanically or radiographically tested as directed by the Engineer. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

The Period of Effectiveness for welder qualifications for welders who are performing field welding shall be a maximum of 3 years for the same weld process and type.

All qualification tests for welders who will be performing field welding shall be witnessed by the Engineer or the Engineer's authorized representative.

Section 6.6.5, "Nonspecified Nondestructive Testing Other Than Visual," of AWS D 1.1, Section 6.6.5 of AWS D 1.4 and Section 6.6.5 of AWS D 1.5 shall not apply.

For any field welding, the Engineer may direct the Contractor to perform nondestructive testing that is in addition to the visual inspection or nondestructive testing specified in the AWS welding codes, in the Standard Specifications or in these special provisions. Additional nondestructive testing required by the Engineer will be paid for as extra work in accordance with Section 4-1.03D, "Extra Work," of the Standard Specifications.

All required repair work to correct field welding deficiencies, whether discovered by the required visual inspection or nondestructive testing or by additional nondestructive testing directed by the Engineer, shall be at the Contractor's expense.

At the completion of all field welding, the QCM shall furnish to the Engineer certificates of compliance in accordance with Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each item of work for which field welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in accordance with the details shown on the plans and the provisions of the Standard Specifications and these special provisions.

Full compensation for conforming to all of the requirements of this section, Field Welding Quality Control, shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

SECTION 9. DESCRIPTION OF BRIDGE WORK

The bridge work to be done consists, in general, of the seismic retrofit of the following structure as shown on the plans and briefly described as follows:

San Mateo Hayward Bridge
(Bridge No. 35-0054)

An 877-span precast deck unit structure, approximately 26,310 feet long and 58.25 (and varies) feet wide.

SECTION 10. CONSTRUCTION DETAILS

SECTION 10-1. GENERAL

10-1.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.

At locations exposed to public traffic where guard railings or barriers are to be constructed, reconstructed, or removed and replaced, the Contractor shall schedule his operations so that at the end of each working day there shall be no post holes open nor shall there be any railing or barrier posts installed without the blocks and rail elements assembled and mounted thereon.

Attention is directed to the electrical and communications systems section of these special provisions and to the plans for notification, scheduling, and time limitations for system interruptions.

All Steel Yoke Units shall be in place before any bridge removal at bent 285 is to begin.

Ordering steel shells for cast-in-steel shell piling shall be the first order of work.

10-1.02 ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM

The Contractor shall provide for the State's exclusive possession and use a complete electronic mobile daily diary computer system, to allow State personnel to record observation (diary) data in the field using Personal Digital Assistants (PDAs), and in the office using desktop workstation(s). Recorded data will be uploaded to a

database maintained on an Oracle server. Diary information in the database shall be capable of being edited and printed in the form of an Engineer's Daily Report from desktop workstations connected to the database via a local area network. The system will also provide other reports required by the Engineer, as well as user friendly and rapid retrieval of daily reports and other information from the database for research purposes.

The Engineer may use the furnished computer hardware, software, and instruction manual for any purposes related to the subject project. Before delivery and set up of the computer system the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims are pending and after the final estimate has been submitted to the Contractor.

The electronic mobile daily diary computer system furnished shall meet the requirements described below for function, data, hardware, and support.

FUNCTIONAL REQUIREMENTS

The Contractor shall provide a computer system that complies with the following minimum functional specifications not later than 5 days after award of contract:

Data Collection Subsystem

1. Accept input of observation data.

General data:

Allow input of data that applies to all observation data sets:

- Inspector ID: agency-specific code; allow up to 10 alphanumeric characters.
- Inspector password: general text field; allow up to 10 characters.
- Inspector name: general text field; allow up to 30 characters.
- Inspector title: general text field; allow up to 30 characters.

Daily contract observation data

Collect one or more contract observation data sets per contract per inspector per day:

- Observation date: month, day & year.
- Contract ID: agency-specific code; allow up to 15 alphanumeric characters.
- Uniqueness guarantor: time and time of creation of the data set.
- Weather condition, am and pm: agency-specific code of up to 10 alphanumeric characters.
- Temperature, high and low: signed numeric value of up to 3 digits (degrees Fahrenheit or Celsius).
- Humidity, high and low: percentage value (0 to 100%).
- Start and stop time for inspector shift (24-hour clock; values at the half hour).
- Start and stop time for jobsite shift (24-hour clock; values at the half hour).
- Level of inspection: values are "continuous", "intermittent" and "no inspection".
- Inspector signature: digital image of signature.

Laborer observation data

Collect multiple labor observations per observation data set:

- Contract item or Contract Change Order (CCO): sequential number; allow up to 6 digits.
- Contractor ID: agency-specific code; allow up to 10 alphanumeric characters.
- Critical Path Method next work (CPM) activity code: agency-specific code; allow up to 10 alphanumeric characters.
- Structure/Line: agency-specific code; allow up to 10 alphanumeric characters.

Location/Station: general text field; allow up to 60 characters.

- Laborer name: last, first, & middle initial.
- Labor classification: agency-specific code; allow up to 10 alphanumeric characters.
- Trainee status: Boolean value.
- Hours: numeric value (0 to 24; up to 2 places behind the decimal point).
- Hours type flag: flag value to indicate regular vs. overtime hours.
- Force account flag: Boolean value (CCO observations only).

Equipment observation data

Collect multiple equipment observations per observation data set:

- Contract item or CCO: sequential number; allow up to 6 digits.

- Contractor ID: agency-specific code; allow up to 10 alphanumeric characters.
- CPM activity code: agency-specific code; allow up to 10 alphanumeric characters.
- Structure/Line: agency-specific code; allow up to 10 alphanumeric characters.
- Location/Station: general text field; allow up to 60 characters.
- Equipment ID: contractor-specific code; allow up to 10 alphanumeric characters.
- Equipment description ("new" equipment only): general text field; allow up to 60 characters.
- Rental status: Boolean value.
- Hours: numeric value (0 to 24; up to 2 places behind the decimal point).
- Hours type flag: flag value to indicate regular vs. overtime vs. idle hours.
- Force account flag: Boolean value (CCO observations only).

Pay Items observation data

Collect multiple pay items observations per observation data set:

- Contract item or CCO: sequential number; allow up to 6 digits.
- Contractor ID: agency-specific code; allow up to 10 alphanumeric characters.
- CPM activity code: agency-specific code; allow up to 10 alphanumeric characters.
- Structure/Line: agency-specific code; allow up to 10 alphanumeric characters.
- Location/Station: general text field; allow up to 60 characters.
- Load ticket ID: Contractor-specific value; allow up to 15 alphanumeric characters.
- Quantity: numeric value; floating point (11,2) specification.
- Lot number: Contractor-specific value; allow up to 15 alphanumeric characters.
- Lab release number: contractor-specific value; allow up to 15 alphanumeric characters.
- Force account flag: Boolean value (CCO observations only).
- Units type (force account observations only): agency-specific code; allow up to 10 alphanumeric characters.
- Material type (force account observations only): general text field; allow up to 60 characters.

Remarks data

Collect multiple remarks per observation data set:

- Contract item or CCO (optional): sequential number; allow up to 6 digits.
- Contractor ID (optional): agency-specific code; allow up to 10 alphanumeric characters.
- CPM activity code: agency-specific code; allow up to 10 alphanumeric characters.
- Structure/Line: agency-specific code; allow up to 10 alphanumeric characters.
- Location/Station: general text field; allow up to 60 alphanumeric characters.
- Remark type: agency-specific code; allow up to 10 alphanumeric characters.
- Remark text: general text field; allow up to 2,000 characters.
- Force account flag: Boolean value (CCO observations only).

2. Provide meaningful display of coded information.

- Display contract descriptions in addition to contract numbers.
- Display item/CCO descriptions in addition to item/CCO numbers.
- Display CPM activity descriptions in addition to CPM activity codes.
- Display Contractor names in addition to Contractor IDs.
- Display equipment descriptions in addition to equipment IDs.
- Display labor classification descriptions in addition to labor classification codes.
- Display material types and units of measure based on contract item number.
- Display weather condition descriptions in addition to weather condition codes.

3. Facilitate entry of inspection data.

In general, methods of data entry shall require the minimum number of actions or keystrokes from the user as is practical

- Provide pick lists from the central database for entry of the following fields:

  Contract numbers.
  Contract item numbers.
  Contractor IDs.
  Laborers.
  Labor classifications.
  Equipment.

Remark types.
Weather conditions (am and pm).

Also provide alphabetical tabs for navigating the list of laborer.

- Provide option of handwriting or typewriter keypad entry for the following fields:

  Inspector ID, password, name, and title.
  CPM activity code.
  Load ticket number.
  Lot number.
  Lab release number.
  Materials location.
  Remark text.
  Laborer name for "new" people.
  Equipment ID and description for "new" equipment.

- Provide option of handwriting or numeric keypad entry for the following fields:

  Contract item number.
  Materials quantity.
  Temperatures (high and low).
  Humidity (high and low).

- Provide "clock" controls for entry of the following fields:

  Inspector shift hours.
  Jobsite shift hours.
  Hours (labor & equipment observations).

- Provide calendar keypad entry for the following fields:

  Observation date.

- Provide checkboxes for entry of the following Boolean fields:

  Trainee status.
  Rental status.
  Force account status.

- Provide radio buttons for entry of the following fields:

  Hours type flag (regular, overtime, idle).

- Provide popup menu for entry of the following fields:

  Level of inspection.

- Copy into labor & equipment observations relevant ratebook codes and values from the central database.
- Provide option to use handwriting or typewriter keypad to enter equipment ID for equipment observations and look up the corresponding piece of equipment, as an alternative to choosing the piece of equipment from a list.
- Provide option to change the labor classification for a labor observation even if the laborer name and classification have been selected from a list (to allow observations of laborers working out of their normal classes).

4. Store observation data sets.

- Store all entered data on the mobile platform for up to 100 observations (any combination of types) per contract observation data set.
- Store data for up to 30 observation data sets on the mobile platform.
- Store or backup data on non-volatile memory to guard against data loss.

5. Support review and modification of observation data sets.

- Allow user to select observation data sets from a list by identifying:

  Engineer ID.
  Observation date.
  Contract number.

- Once a data set is selected, display all observation entries in an overview list. Allow list to be sorted by observation type, contract item, or Contractor. Also allow list to be restricted by observation type (labor, equipment, materials, or remarks) so that additional data can be displayed for the observations (e.g., labor name, hours & hours type for labor entries).
- Provide option to duplicate observation entries from the list, optionally setting item number & hours fields to new values.
- Allow list entries to be selected and edited.
- Allow user to update weather condition and shift hour data.
- Allow user to duplicate entire observation data sets to a new date selected by the user.
- Allow user to delete observation data sets (after confirmation).

6. Communicate with database server to upload diaries and download control tables.

- Allow user to mark diaries as "done" and collect a signature image at that time. After the diary has been signed, prohibit any other modifications to the diary. If diary is marked "undone" then allow modifications but throw away signature, so that a new signature is always required at whatever point the diary is marked "done" (i.e., ready for transmission).
- Connect to communications server via direct serial connection, providing database user ID and password.
- Send observation data.

  Select for transmission all observation data sets marked "done" that have not yet been transmitted.

  Output a serial stream containing the observation data sets to be transmitted.

  Display status during transmission and provide confirmation that data was sent to the server.

  Set a flag in transmitted data sets to indicate that they have been transmitted.

  Be capable of handling unexpected interruptions in the communication link.

- Receive control table data.

  Automatically request all necessary control table downloads, providing both user ID and date of last download.

  Accept a serial stream containing control table updates.

  Display status during transmission and provide confirmation that data was received from the server.

  Set the date of last update for received control tables.

  Be capable of handling unexpected interruptions in the communication link.

7. Provide additional productivity support.

- Display a list of names with addresses, phone numbers, radio call numbers and vehicle IDs. List entries must be transparently downloaded from a central database along with other control table data.
- Provide a programmable scientific calculator option.

8. Provide adequate hardware functionality for hand-held computer.

- Allow data (other than signature image) to be entered with choice of either pen or keyboard.
- Weigh less than 2 pounds.
- Battery to have a life of at least 4 continuous hours between chargings.
- Provide "instant on" capability.
- Operate within a temperature range of 32 to 104 degrees Fahrenheit (similar to most electronic calculators).
- Backlit screen

Database Communication Subsystem

1. Connect to mobile platform and database server:

- Connect to mobile platform via direct serial connection.
- Accept database user ID and password from mobile platform.
- Use the user ID and password to connect to Oracle database for read/write access, either locally or across a local area network.

2. Upload observation data.

- Accept upload requests and data from the mobile device.
- Drive data recognition and database write functions from an editable configuration file.
- Write observation data to an Oracle database.
- Be capable of handling unexpected interruptions in the communication link.

3. Download control data.

- Accept download requests from the mobile device.
- Drive data selection and database read functions from an editable configuration file and information (user ID and date of last download) supplied by the mobile device, to limit downloads to only the required data.
- Read information from an Oracle database and output it to the mobile device.
- Be capable of handling unexpected interruptions in the communication link.

4. Output audit and debugging data.

- Provide an option to create archive files for data uploads.
- Provide an option to create trace file output for data uploads.

5. Provide status/feedback on server operations.

- Display status and information regarding in-progress data transmissions.

- Provide optional trace window to display low-level actions of the server application in readable form.

6. Allow administrator to control the server application.

- Allow administrator to start/stop communication activity.
- Allow administrator to select connection port and configuration file.
- Allow administrator to select archive and trace options.

Data Access Subsystem

1. Connect to database server and validate user name and password for authority to access data.
2. View observation data:

- Retrieve observation data sets based on date, inspector, and/or contract item number, CCO number, or CPM activity code.
- Display observation data sets on-line in a screen version of Daily Diaries.
- Print observation data sets in a paper version of Daily Diaries. Diaries shall include the following information:

  First page header: Caltrans logo, contract number & description, date, workday, jobsite and inspector shift hours, weather am/pm, temperature hi/lo, humidity hi/lo, inspector name and signature, page number.

  Subsequent page header: contract number & description, date, workday, inspector name, page number.

  Report body: summary of items of work performed, list of laborers, list of equipment, list of pay items, list of general remarks; each section sorted by Structure/Line.

  Report footer: "end of report" indicator.

- Print a special "CCO diary" to show only observations for a specified CCO.
- Print a special "activity diary" to show only observations for a specified CPM activity.
- Compute and display/print the California Department of Transportation (Caltrans) construction workday for each diary.

3. Edit observation data:

- Retrieve observation data sets based on inspector and approval status.
- Display observation data sets on-line in a screen version of Daily Diaries.
- Allow observation data sets to be edited on-line.
- Allow observation data sets to be created on-line.
- Allow remark text to be imported from text files.
- Print observation data sets in a paper version of Daily Diaries.
- Print "CCO diary" to show only observations for a specified CCO.
- Print "activity diary" to show only observations for a specified CPM activity.
- Compute and display/print the Caltrans construction workday for each diary.

4. Approve observation data:

- Retrieve observation data sets based on inspector, supervisor, and approval status.
- Display observation data sets on-line in a screen version of Daily Diaries.
- Allow observation data sets to be approved or rejected on-line.
- Print observation data sets in a paper version of Daily Diaries.
- Print "CCO diary" to show only observations for a specified CCO.
- Print "activity diary" to show only observations for a specified CPM activity.
- Compute and display/print the Caltrans construction workday for each diary.

5. Report observation data.

- Display/print an inspector work summary report by date, supervisor, inspector, contract.
- Display/print a labor compliance report by date, Contractor, employee, contract.
- Display/print an item detail report for labor hours by date, Contractor, contract, item/CCO/activity, structure/line.
- Display/print an item detail report for equipment hours by date, Contractor, equipment ID, contract, item/CCO/activity, structure/line.
- Display/print an item detail report for pay items by date, Contractor, contract, item/CCO/activity, structure/line.
- Display/print an item detail report for remarks by date, remark type, contract, item/CCO/activity, structure/line.
- Display/print an extra work report for labor hours by date, Contractor, contract, CCO.
- Display/print an extra work report for equipment hours by date, Contractor, equipment ID, contract, CCO.
- Display/print an extra work report for pay items by date, Contractor, contract, CCO.

6. Prepare source sheets for use in pay estimates.

- Allow source sheets to be selected by contract, item and month.
- Provide storage for estimate data on a per-item basis:

  Original estimate quantity, changes due to CCO, and current estimate quantity.

  Quantity previously paid, quantity paid this month, total paid to date.

- Automatically retrieve all pay item observations for the given item and the given month and calculate the total.
- Allow monthly total to be adjusted and reason for adjustment to be recorded.
- Print the resulting source sheets.

7. Allow maintenance of control table data in the Oracle database:

- Provide the ability to add, modify or delete entries in the database control tables:

  Users (inspectors).
  Weather conditions.
  Labor classifications
  Remark types.
  Titles.
  Name/phone list.
  Contractors.
  Laborers.
  Equipment.
  Contracts.
  Contract items.
  CCOs.
  CPM activity codes.
  Inspector assignments to contracts.
  Contractor assignments to contract items.

- Provide the ability to import lists of laborers & equipment from contractors into the database.
- Maintain integrity of database constraints during edit and import processes.

8. Provide the capability of generating diagnostic reports to identify the following:

Duplication of labor, equipment, and materials entries on all diaries for any given date.

Notification of labor and equipment entries as “new”.

HARDWARE REQUIREMENTS

The Contractor shall furnish all hardware required for the electronic mobile daily diary computer system, including PDAs, desktop systems, servers, printers, and miscellaneous hardware. The minimum requirements for the various classes of hardware are as follows:

- PDA: Apple Newton 2000 Message Pad, or 100% compatible with 5 MB RAM card, 8MB ROM charging station, carrying case, and Newton OS 2.0.
- Desktop workstation: Power Macintosh 7200/120 or 100% compatible with PowerPC 604 processor, 24 MB RAM, 1.2 GB hard drive, CD-ROM, 28.8K modem, ethernet, 800x600 monitor, keyboard, mouse, MacOS 7.5.3 or better, and Windows NT user (client) license.
- Database server: IBM PC or 100% compatible with 133 MHz Pentium, 64 MB RAM, 2 GB hard drive, CD-ROM, DAT drive, UPS, 28.8K modem, network adapter, 800x600 monitor, keyboard, mouse, Windows NT 3.51 OS, and Oracle Workgroup Server 2000 for NT v7.2.
- Printer: HP LaserJet 5-series or 100% compatible.
- Network: Ethernet network with twisted-pair wiring and passive hub.
- Apple QuickTake 200 Color Digital Camera, AC adaptor, and carrying case.
- HP DeskJet Color Printer or 100% compatible.

The Contractor shall supply hardware for the system in the following quantities.

- 10 – PDA and accessories as described above.
- 02 – desktop workstations as described above.
- 01 – database servers as described above.
- 01 – printers as described above.
- 01 - digital camera
- as need it – misc. network hardware and cables as described above.
- 03 – PDA keyboards.
- 02 – PDA print packs.
- 10– Oracle Workgroup Server licenses.
- 30 - WriteRight screen enhancers
- 20 - Replacement styluses for PDAs
- 02 - Equate Version 2.0 or similar spreadsheet software

SUPPORT REQUIREMENTS

The Contractor shall furnish all support required for the electronic mobile daily diary computer system. The minimum requirements for support are as follows:

- Installation: initial on-site installation and verification of hardware, software and networks.

- Training: initial on-site training for one half day for up to (20) Caltrans inspectors and database/system administrators.
- Telephone and e-mail support: the Caltrans system administrator may submit operational questions by telephone during normal business hours or by electronic mail at any time. Emergencies will receive immediate attention, and other questions will be answered within one business day.
- Software updates: occasional maintenance updates to the application software, as needed.
- On-site visits: scheduled visits to the installation site to check system operation,, provide "refresher" or advanced training, install software updates, etc., as agreed with the Engineer.

The Contractor shall furnish support required for the Electronic Mobile Daily Diary Computer System for a period of 18 months following award of contract.

PAYMENT

Attention is directed to Sections 9-1.06, "Partial Payments", and 9-1.07, "Payments after Acceptance", of the Standard Specifications and these special provisions. Payment for providing and implementing this Mobile Daily Diary Computer System will be made on a lump sum basis, in four milestones as follows:

- Milestone 1: This milestone will be satisfied upon delivery and installation of hardware and database software as described under "Hardware Requirements", above. Payment for milestone 1 = 45% of total item lump sum cost.
- Milestone 2: This milestone will be satisfied upon acceptance of the system by the Engineer as functionally complete per these specifications. Payment for milestone 2 = 25% of total item lump sum cost.
- Milestone 3: This milestone will be satisfied upon completion of initial training for Caltrans personnel. Training shall be held at a time and location approved by the Engineer. Payment for milestone 3 = 15% of total item lump sum cost.
- Milestone 4: This milestone will be satisfied upon completion of the third of three feedback sessions between the Electronic Mobile Daily Diary Computer System vendor and Caltrans engineers. Payment for milestone 4 = 15% of total item lump sum cost.

Mobile Daily Diary Computer System will be paid at a lump sum price.

The contract lump sum price paid for the Electronic Mobile Daily Diary Computer System shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in supplying the Mobile Daily Diary Computer System, complete and in place, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.03 ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY

Attention is directed to Sections 5-1.10, "Equipment and Plants", and 7-1.01A(3), "Payroll Records", of the Standard Specifications, and these special provisions.

The Contractor shall submit to the Engineer the list of each piece of equipment and its identifying number, type, make, model and rate code (per the Department of Transportation publication entitled “Labor Surcharge and Equipment Rental Rate” which is in effect on the date upon the work is performed and the names and work classifications for all field personnel employed by them in connection with the public work, together with such additional information as is identified below, for the Contractor and all subcontractors. This information shall be updated and submitted to the Engineer weekly through the life of the project.

This personnel information will only be used for this mobile daily diary computer system and it will not relieve the Contractor and subcontractors from all the payroll records requirements as required by Section 7-1.01A(3), "Payroll Records", of the Standard Specifications.

The Contractor shall provide the personnel and equipment information not later than 5 days after the award of contract for its own personnel and equipment, and not later than 5 days before start of work by any subcontractor for the labor and equipment data of that subcontractor.

The minimum data to be furnished shall comply with the following specifications:

Data Content Requirements

1. The prime Contractor shall provide the following basic information for itself and for each subcontractor that will be used on the contract:

- Company name. Alphanumeric; up to 30 chars.
- Address (line 1). Alphanumeric; up to 30 chars.
- Address (line 2). Alphanumeric; up to 30 chars.
- Address (city). Alphanumeric; up to 30 chars.
- Address (2-letter state code). Alphanumeric; up to 2 chars.
- Address (zip code) Alphanumeric; up to 14 chars.
- Contact name. Alphanumeric; up to 30 chars.
- Telephone number (with area code). Alphanumeric; up to 20 chars.
- Company code: short company name. Alphanumeric; up to 10 chars.
- DBE status (Caltrans-supplied codes) Alphanumeric; up to 10 chars.
- Ethinity for DBE status (Caltrans-supplied codes). Alphanumeric; up to 10 chars.
- List of laborers to used on this contract (detail specified below).
- List of equipment to used on this contract (detail specified below).

For example, one such set of information for a company might be:

- XYZ Company, Inc.
- 1240 9th Street
- Suite 600
- Oakland
- CA
- 94612
- John Smith
- (510) 834-9999
- XYZ
- MBE
- Black

2. The prime Contractor shall provide the following information for each laborer who will be used on the contract:

- Company code (as defined above). Alphanumeric; up to 10 chars.
- Last name. Alphanumeric; up to 20 chars.
- First name. Alphanumeric; up to 15 chars.
- Middle initial. Alphanumeric; up to 1 char.

- Labor classification (Caltrans-provided codes). Alphanum.; up to 10 chars.
- Hourly rate. Numeric; up to (6,2)
- Trainee status (Y/N). Alphanumeric; up to 1 char.
- Ethnicity (Caltrans-provided codes). Alphanumeric; up to 10 chars.
- Gender. Alphanumeric; up to 1 char.

For example, one such set of information might be:

- XYZ
- Gonzalez
- Hector
- V
- OPR
- 22.75
- N
- Hispanic
- M

3. The prime Contractor shall provide the following information for each piece of equipment that will be used on the contract:

- Company code (as defined above). Alphanumeric; up to 10 chars.
- Company's equipment ID number. Alphanumeric; up to 10 chars.
- Company's equipment description. Alphanumeric; up to 60 chars.
- Equip. type (from Caltrans ratebook). Alphanumeric; up to 60 chars.
- Equip. make (from Caltrans ratebook). Alphanumeric; up to 60 chars.
- Equip. model (from Caltrans ratebook). Alphanumeric; up to 60 chars.
- Equip. rate code (fr. Caltrans ratebook). Alphanumeric; up to 10 chars.
- Hourly rate. Numeric; up to (6,2)

For example, one such set of information might be:

- XYZ
- B043
- CAT TRACTOR D-6C
- TRACC
- CAT
- D-6C
- 3645
- 28.08

Data Delivery Requirements

1. All data described in the "Data Requirements" of this section shall be delivered to Caltrans electronically, on 3 1/4" floppy disks compatible with the Microsoft Windows operating system. The Contractor shall provide a weekly disk and hard copy of the required correct updated personnel and equipment information for the Contractor and all the subcontractors and verified correct by the Engineer.

2. Data of each type of described in the previous section (contractor, labor, and equipment information) will be delivered separately, each type in one or more files on floppy disk. Any given file may contain information from one contractor or from multiple contractors, but only one type of data (contractor, labor, or equipment information).

3. The file format for all files delivered to Caltrans shall be standard tab-delimited, plain text files. Characteristics of this type of file are:

- All data is in the form of plain ASCII characters.
- Each row of data (company, person, equipment) is delimited by a carriage return character.
- Within rows, each column (field) of data is delimited by a tab character. This type of file is the most standard type for interchange of formatted data; it can be created and read by all desktop spreadsheet and desktop database applications.

4. The files shall have the following columns (i.e., each row shall have the following fields):

- Contractor info: 11 columns (fields) as specified in "Data Requirements #1", above.
- Labor info: 9 columns (fields) as specified in "Data Requirements #2", above.
- Equipment info: 8 columns (fields) as specified in "Data Requirements #3", above.

For each type of file, columns (fields) must be in the order specified under "Data Requirements", above. All columns (fields) described under "Data Requirements" must be present for all rows, even if some column (field) values are empty. The first row of each file may contain column headers (in plain text) rather than data, if desired.

5. Column (field) contents must conform to the data type and length requirements described in the "Data Requirement" section, above. In addition, column (field) data must conform to the following restrictions:

- Labor classification codes must conform to a list of standard codes that will be supplied by Caltrans.
- DBE status codes must conform to a list of standard codes that will be supplied by Caltrans.
- Ethnicity codes must conform to standard codes that will be supplied by Caltrans.
- Data in the "trainee status" column must be either "Y" or "N".
- Data in the "gender" column must be either "M" or "F".
- Data in laborer last name, first name and middle initial fields shall be all uppercase. Any letters in the equipment number field shall likewise be uppercase.

- Equipment owner's description may not be omitted. (The description, together with the equipment number, is how the equipment will be identified in the field.)
- Equipment type, make, model, and ratebook code shall conform to the Department of Transportation Publication entitled “Labor Surcharge and Equipment Rental Rate”, which is in effect on the date upon the work is performed. If the equipment in question does not have an entry in the book then alternate, descriptive entries may be made in these fields.

6. The name of each file must indicate its contents, e.g., "XYZlab.txt" for laborers from XYZ Company, Inc. Each floppy disk supplied to Caltrans must be accompanied by a printed list of the files it contains with a brief description of the contents of each file.

PAYMENT

Payment for providing Electronic Mobile Daily Diary Computer System Data Delivery will be made on a lump sum basis .The lump sum bid price for Electronic Mobile Daily Diary Computer System Data Delivery will be made according to the following schedule :

The Contractor will receive 5 per cent per month of the total bid price for Electronic Mobile Daily Diary Computer System Data Delivery.

After the completion of the work, 100 per cent payment will be made for Electronic Mobile Daily Diary Computer System Data Delivery less the permanent deduction, if any, for failure to deliver complete weekly Electronic Mobile Daily Diary Computer System Data in each month.

The contract lump sum price paid for Electronic Mobile Daily Diary Computer System Data Delivery shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Electronic Mobile Daily Diary Computer System Data Delivery as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.04 WATER POLLUTION CONTROL

Water pollution control work shall conform to the requirements in Section 7-1.01G, "Water Pollution," of the Standard Specifications, and these special provisions.

This project shall conform to the requirements of Local Permit No. CA S029998 issued by the State of California San Francisco Bay Regional (Region 2) Water Quality Control Board. This Local Permit, hereafter referred to as the "Permit," regulates storm water discharges associated with construction activities.

Water pollution control work shall conform to the requirements of the "Caltrans Storm Water Quality Handbook, Construction Contractor's Guide and Specifications", dated May 10, 1996, hereafter referred to as the "Handbook". Copies of the Handbook may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, 1900 Royal Oaks Drive, Sacramento, California 95815, Telephone: (916)445-3520.

Copies of the Handbook and the Permit are also available at the Caltrans Information Center, 111 Grand Avenue, Oakland, CA 94601, Telephone (510) 286-4444.

The Permit requires the Department to develop, implement and maintain a Storm Water Pollution Prevention Plan. The Department has prepared a "Draft Water Pollution Control Plan" for this project. Copies of the Draft Water Pollution Control Plan may be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N. Street, PO Box 942874, Sacramento, CA 94274-0001, Telephone No. (916) 654-4490, and are available for inspection at the office of the District Director of Transportation at 111 Grand Avenue, Oakland, CA. The Contractor shall comply with all applicable provisions of the Permit. The Contractor shall be responsible for all fines, damages and job delays incurred due to failure to implement the requirements of the Permit.

All areas outside of the project limits disturbed by the Contractor for the prosecution of the work shall also be subject to the requirements of these special provisions. The Contractor shall be fully responsible for all costs and liabilities associated with water pollution control measures in areas outside the project limits.

The Contractor shall become fully informed of the conditions of the Permit that govern the Contractor's operations and shall conduct the construction operations accordingly.

The Contractor shall maintain a copy of the Permit at the construction site and shall make the Permit available to operating personnel during construction activities.

Conformance with the requirements of this section shall not relieve the Contractor from the Contractor's responsibilities, as provided in Section 7-1.11, "Preservation of Property," and Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

The Contractor shall, at reasonable times, allow authorized agents of the State Regional Water Quality Control Board, State Water Resources Control Board, U.S. Environmental Protection Agency, and local storm water management agency, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the construction site and the Contractor's facilities pertinent to the work;
2. Have access to and copy any records that must be kept as specified in the Permit;
3. Inspect the construction site and related erosion and sediment control measures; and
4. Sample or monitor for the purpose of ensuring compliance with the Permit.

The Contractor shall notify the Engineer immediately upon request from Regulatory Agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records.

STORM WATER POLLUTION PREVENTION PLAN PREPARATION, APPROVAL, AND UPDATES.--As part of the water pollution control work, a Storm Water Pollution Prevention Plan, hereafter referred to as the "SWPPP", is required for this contract. The SWPPP shall conform to the requirements in Section 7-1.01G, "Water Pollution," of the Standard Specifications, the requirements in the Handbook, the requirements of the Permit, and these special provisions.

The objectives of the SWPPP shall be to identify pollution sources that may affect the quality of storm water discharges and to identify, construct, implement and maintain water pollution control measures, hereafter

referred to as control measures, to reduce pollutants in storm water discharges associated with construction activity under the contract.

The SWPPP shall incorporate control measures in all of the following categories:

1. Erosion and sediment source control practices;
2. Sediment treatment control practices;
3. Tracking control practices;
4. Wind erosion control practices; and
5. Construction waste management practices.

Control measures shall include all minimum requirements specified in the Handbook. In addition, the Contractor shall consider all potential control measures listed and described in the Handbook in each of the above categories. The Contractor shall document the selection process in accordance with the procedure outlined in the Handbook.

The SWPPP shall graphically indicate where control measures will be used during all phases of construction.

The SWPPP shall include all items required by the Permit including, but not limited to the following:

1. A location map;
2. A site map;
3. A narrative description of known on-site toxic materials, practices to minimize the contact of construction materials with storm water, material and equipment handling areas, pollution control measures, on-site construction materials storage and disposal methods, and existing and proposed soil conditions and fill material;
4. A list of pollutants that are likely to be present in the storm water discharge and pollution control measures to reduce the pollutant levels in the storm water;
5. An estimate of the site specific construction data, including construction area, runoff coefficients, and percentages of impervious area;
6. A copy of the Notice of Intent (NOI) submitted by the Department for this project; and
7. A listing, provided by the Engineer, of the permanent and post-construction control measures.

The SWPPP shall include the signature and title of the person responsible for the preparation of the SWPPP. The SWPPP shall also indicate the date of initial preparation.

Within 15 days after the approval of the contract, the Contractor shall submit 3 copies of the SWPPP to the Engineer. The Contractor shall allow 15 days for the Engineer to review the SWPPP. If revisions are required, as determined by the Engineer, the Contractor shall submit a revised plan within 10 days. No work having potential to cause water pollution, as determined by the Engineer, shall be performed until the SWPPP has been approved by the Engineer. Upon approval, 3 additional copies shall be submitted to the Engineer with the required changes. Minor changes or clarifications to the initial submittal may be made and attached as amendments to the SWPPP. In order to allow construction activities to proceed, the Engineer may conditionally approve the SWPPP while minor amendments are being completed.

The Contractor shall amend the SWPPP, graphically and in narrative form, whenever there is a change in construction activities or operations which may affect the discharge of significant quantities of pollutants to surface waters, ground waters, municipal storm drain systems, or when deemed necessary by Engineer. The SWPPP shall also be amended if it is in violation of any condition of the Permit, or has not achieved the general objective of reducing pollutants in storm water discharges. Amendments shall be dated and logged in the SWPPP and attached to the onsite document.

The Contractor shall keep a copy of the SWPPP, together with updates, revisions and amendments, at the construction site. The SWPPP shall be made available upon request of a representative of the Regional Water Quality Control Board or local agency. Requests by the public shall be directed to the Engineer.

By June 15 of each year, the Contractor shall submit an annual certification to the Engineer stating compliance with the requirements governing the Permit. If the project is in non-compliance at any time, the Contractor shall make a written report to the Engineer within 15 days of identification of non-compliance.

COST BREAKDOWN.--With the submittal of the SWPPP, the Contractor shall furnish to the Engineer for approval a cost breakdown for the lump sum item of water pollution control work measures. The cost breakdown shall reflect all items of work, quantities and costs for the water pollution control work measures.

No adjustment in compensation will be made in the contract lump sum price paid for water pollution control due to any differences between the quantities shown in the cost breakdown furnished by the Contractor and the quantities required to complete the work shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in the cost breakdown shall be equal to the contract lump sum price bid for water pollution control.

The cost breakdown shall be approved in writing by the Engineer, before any progress payment for the item of Water Pollution Control work measures will be made. The approved cost breakdown will be used to determine progress payments during the progress of the work and as the basis for calculating any adjustment in compensation for the item of Water Pollution Control work measures due to changes in the construction work ordered by the Engineer.

STORM WATER POLLUTION PREVENTION PLAN IMPLEMENTATION.--Upon approval of the SWPPP, the Contractor shall be responsible for installing, constructing, and implementing all control measures

included in the SWPPP. Requirements for installation, construction and implementation of control measures are specified in the Handbook.

If the control measures being taken by the Contractor are inadequate to control water pollution effectively, the Engineer may require the Contractor to revise the operations and amend the SWPPP.

Erosion and sediment control measures shall be provided throughout the winter season defined as between September 15 and May 1.

Implementation of erosion and sediment control measures shall be completed no later than 20 days prior to the beginning of the winter season.

During the winter season, each active, soil-disturbed, construction location, including stockpiled materials at storage or staging areas, shall be no more than 10 acres in size. The Contractor shall demonstrate the ability to fully deploy erosion control measures to protect the entire construction area before the onset of precipitation. The Engineer may approve on a case-by-case basis expansions of the 10 acre site limit.

During the winter season, nonactive construction areas that have the potential to erode due to previous construction activities shall be fully protected.

During the winter season, active construction locations shall be fully protected at the end of each working day, unless fair weather is predicted through the following work day. The weather forecast shall be monitored by the Contractor on a daily basis. The 3 to 5 day National Weather Service forecast shall be used. The Contractor may propose an alternative weather forecast for use if approved by the Engineer. If precipitation is predicted prior to the end of the following work day, construction scheduling shall be modified, as required, to provide functioning water pollution control measures prior to the onset of the precipitation.

If the work in any area has not progressed to a point where all or part of the facilities on the SWPPP for that area can be constructed, the Contractor shall construct such supplementary control facilities as are necessary to protect adjacent private and public property.

Construction waste management control measures, such as vehicle maintenance and waste control measures, shall be provided year-round through the duration of the project.

The Engineer may order suspension of construction operations which create pollution if the Contractor fails to conform to the requirements of this section, "Water Pollution Control," as determined by the Engineer.

INSPECTION AND MAINTENANCE.--To ensure the proper implementation and functioning of control measures, the Contractor shall regularly inspect and maintain the construction site for the control measures identified in the SWPPP. The Contractor shall identify corrective actions and time frames to address any damaged measures or reinitiate any measures that have been discontinued.

The construction site inspection checklist provided in the Handbook shall be used to ensure that the necessary measures are being properly implemented and to ensure that the control measures are functioning adequately. The Contractor shall submit one copy of each site inspection record to the Engineer.

During the winter season, inspections of the construction site shall be conducted by the Contractor to identify deficient measures, as follows:

1. prior to a predicted storm;
2. after all precipitation which causes runoff capable of carrying sediment from the construction site;
3. at 24 hour intervals during extended precipitation events; and
4. routinely, on a minimum twice monthly basis.

If the Contractor identifies a deficiency in the deployment or functioning of an identified control measure, the deficiency shall be corrected in a timely manner. If the Engineer identifies a deficiency in the deployment or functioning of an identified control measure, the Contractor will be notified in writing and the deficiencies shall be corrected by the Contractor in a timely manner.

PAYMENT.--The contract lump sum price paid for storm water pollution prevention plan shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals for doing all the work involved in developing, obtaining approval of, and updating the storm water pollution prevention plan, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for storm water pollution prevention plan will be made as follows:

1. When the storm water pollution prevention plan has been reviewed and approved by the Engineer, an 80 percent payment will be made; and
2. When the project has been completed, the remaining 20 percent payment will be made.

The contract lump sum price paid for water pollution control shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing, constructing, implementing, inspecting and maintaining control measures, excluding preparing the storm water pollution prevention plan, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The Engineer will retain an amount equal to 25 percent of the estimated value of all contract work performed during estimate periods in which the Contractor fails to conform to the requirements of this section, "Water Pollution Control," as determined by the Engineer.

Retentions for failure to conform to the requirements of this section shall be in addition to all other retentions provided for in the contract. The amounts retained for

failure of the Contractor to conform to the requirements of this section will be released for payment on the next monthly estimate for partial payment following the date that a Water Pollution Control Program has been implemented and maintained, and water pollution is adequately controlled as determined by the Engineer.

10-1.05 NON-STORM WATER DISCHARGE.

The Contractor shall prevent the flow of water, including ground water, surface runoff and tidal flow from entering any temporary stockpiles on land.

The Contractor shall submit to the Engineer, as provided in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, a plan which details the methods and measures that will be used to dewater the temporary stockpiles, to seal the sides and bottom of the temporary stockpiles and prevent the flow of water into the stockpiles. The time to be provided for the Engineer's review and approval of the plan shall be 10 working days prior to beginning temporary stockpile operations. Operations producing water will not be permitted until the plan has been approved by the Engineer.

All water removal from temporary stockpiles shall be handled in accordance with National Pollutant Discharge Elimination System (NPDES) Permit CAS029998, issued by the San Francisco Bay Regional Water Quality Control Board. Copies of the permit and its amendments will be available for inspection and purchase at the Department of Transportation, Duty Senior's Desk, 111 Grand Avenue, Oakland, California, (510) 286-5209. In addition, materials information entitled "San Mateo-Hayward Bridge Site Water" will be available for review at the same location.

The Contractor is responsible for all work, records, reports, and costs involved in handling the water in accordance with the NPDES permit. The Contractor shall supply all analytical data, dewatering volume records, and written requests for discharge to the Engineer for approval prior to discharging any water. The Engineer shall have up to 7 calendar days for review and approval of discharge. Water that does not meet discharge permit requirements shall not be discharged on the site or to the storm drainage or to the sanitary sewer systems. The Contractor is responsible for either treating such water to meet the permit requirements for discharge or hauling such water off site to an appropriately licensed liquid disposal facility. Penalties assessed against the State for permit non-compliance by the Contractor will be borne by the Contractor. Such penalties will be deducted from the monthly progress payment.

However, nothing in this section, "Non-Storm Water Discharge," will be construed as relieving the Contractor of full responsibility of complying with Section 7-1.16 "Contractor's Responsibility for the Work and Materials" of the Standard Specifications.

The contract lump sum price paid for non-storm water discharge shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including sealing the stockpiles, preventing water from entering any stockpiles, dewatering and handling all water encountered during temporary stockpiling operations, sampling, analyzing, treating, and discharging or hauling the water to a disposal facility and for doing all the work involved in handling such water completely as specified in these special provisions in accordance with the requirements contained in the NPDES permit.

10-1.06 SITE INVESTIGATION

A site investigation into the proposed pile clean out areas shall consist of drilling one (1) borehole per pile, collecting sediment samples and chemical analysis of sediment samples at the depths of 0, 5 and 10 feet below the sediment surface. The sediment samples shall be analyzed in accordance with the methods listed in the table in this section titled "SAMPLING PLAN". Drilling equipment shall have the ability to drill boreholes in bay sediment; to drive thin and/or thick-walled sediment samplers to the maximum sampling depth, and to have the capability to obtain continuous samples of sediment.

Sediment samples shall be obtained using thin and/or thick walled sample barrels with stainless steel inserts. The Contractor has the option to use inserts made of material that will not interfere with the EPA Methods listed in the "SAMPLING PLAN." Brass inserts are not allowed. Sediment sample containers shall be covered with non-adhesive teflon tape and covered by an inert plastic cap, labeled, preserved immediately at 4° C, and delivered to the laboratory for analysis within 24 hours from the time of sampling. The laboratory performing chemical analyses shall be certified by the California Department of Health Services Environmental Laboratory Accreditation Program for the laboratory test methods specified. All sampling and analysis conducted shall be performed in accordance with approved QA/QC procedures.

SAMPLING PLAN		
Chemical Compound	EPA Test Method	Method Detection Limit
Arsenic	6010	0.1
Cadmium	6010	0.1
Chromium	6010	0.1
Copper	6010	0.1
Lead	6010	0.1
Mercury	6010	0.02
Nickel	6010	0.1
Selenium	6010	0.1
Silver	6010	0.1
Zinc	6010	1.0
TRPH	418.1	20
PCBs	8080/8081*	0.02
Pesticides	608	0.002
PAHs	8270	0.02
Total solids/water content	ASTM 2216	0.1%
TOC	9060	0.1%

Notes and Abbreviations:

EPA - United States Environmental Protection Agency
TRPH: Total Recoverable Petroleum Hydrocarbons
PCBs:: Polychlorinated Biphenyls
* : as Aroclor equivalents 1016, 1221, 1232, 1242, 1248, 1254, 1261 and total PCB
PAHs: Polynuclear Aromatic Hydrocarbons
TOC: Total Organic Carbon
ASTM: American Society for Testing and Materials
Detection Limits shown are concentrations in milligrams per kilogram unless otherwise indicated

Borings shall be logged by an engineering geologist and boring logs shall include a description of the geologic character of each formation, classification by the Unified Soil Classification System, depth at which changes were observed, thickness of units, depth to water, color of subsurface material and field instrument readings corresponding to the depth of the sample. When the sampling is complete, the borehole will be backfilled with grout or neat cement during the same day or as directed by the Engineer.

Material removed from boreholes shall be properly collected in DOT approved transportable containers. The containers shall be properly labeled with the Contractor's name and borehole cuttings identification. The Contractor shall properly dispose the containers within 21 working days after chemical analyses results from the investigation are available to the Contractor from the laboratory.

The Engineer will obtain the Environmental Protection Agency Generator Identification Number and Board of Equalization Number as the State is the Generator.

The Contractor shall have available all necessary equipment to tremie materials into boreholes; maintain drilling fluids; mix grout or grout mixtures; control and collect all drill cuttings and fluids.

Investigative Health, Safety and Work Plan--The Contractor shall prepare a Health, Safety and Work Plan for the site investigation for all site personnel in accordance with the DTSC and CAL-OSHA regulations. The Health, Safety and Work Plan shall include a plot plan indicating the exclusion zones contaminant reduction (decontamination) zones and support zones in accordance with California Code of Regulations (CCR), Title 8; an air monitoring plan; site clean up procedures; soil boring locations; sampling protocol; analytical program; quality assurance/quality control ; and shall be submitted at least 15 working days prior to beginning the investigation for review and acceptance by the Engineer. Prior to submittal, the Contractor shall have the Health, Safety and Work plan approved by a Civil Engineer, registered in the State of California and by a Certified Industrial Hygienist.

Site Investigation Report--The Contractor shall prepare a site investigation report documenting the implementation of the investigative health, safety and work plan within 25 working days of completion of field activities. The site investigation report shall include maps showing the location of bents and the sample results and prior to submittal, the report shall be signed by a Civil Engineer or Engineering Geologist, registered in the State of California.

Measurement and Payment: The contract lump sum price paid for site investigation shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for performing all the work involved in the investigative health, safety and work plan, site investigation report, drilling, soil sampling and chemical analysis.

Handling, transportation and discharging of the containers will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

10-1.07 COOPERATION

Attention is directed to Sections 7-1.14, "Cooperation," and 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications and these special provisions.

During the life of this contract, work by State forces and other contractors may be in progress within or adjacent to the project limits of this contract. The Contractor shall coordinate his operations with the State, and other contractors performing work within these construction limits.

Other State highway contracts within or adjacent to the project limits of this contract include the following:

04-043634	Seismic Retrofit San Mateo-Hayward Bridge (West Approach)
04-0436V4	Seismic Retrofit San Mateo-Hayward Bridge (High Rise)
04-150404	Traffic Operations System (Various Locations)
04-003050	San Mateo-Hayward (Trestle Widening)

Progress schedules for such work by others, when available, may be inspected by the Contractor at the Engineer's office with prior approval by the Engineer. Such progress schedules are tentative and no guarantee can be made by the State that such work will be performed as indicated by such schedules. The Contractor shall participate in weekly work planning meetings with the Engineer.

The Contractor shall comply with all security policies of the State concerning the San Mateo-Hayward Bridge.

10-1.08 PROGRESS SCHEDULE (CRITICAL PATH)

Progress schedules will be required for this contract. Within 20 working days of the approval of the contract the Contractor shall submit to the Engineer a baseline progress schedule. The baseline progress schedule shall utilize a Critical Path Method (CPM) network diagram that clearly shows sequence and duration of major construction activities, interim milestones or completion dates required in the contract, and the controlling operation or operations.

The baseline CPM progress schedule submitted by the Contractor shall have no more than 150 activities unless permitted otherwise by the Engineer, and shall show all major activities that define the critical path for significant portions of the work. Individual activities that are not significant in themselves and create a series of parallel paths, shall be grouped within major activities or combined to form a more general major activity. The actual number of activities in the CPM network shall, in the judgment of the Engineer, be sufficient to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts and not to primarily manage the various resources that may be used by the Contractor. Along with the network diagram the Contractor shall submit a tabular listing of the schedule activities, their dependency and precedence relationships, durations and performance sequence.

Major activities are defined as single activities or groups of activities that create a significant portion of the project due to location, related type of work, or common completion dates. Major activities shall have durations of not less than 5 nor more than 20 working days. Milestone or transitional activities may have durations of less than 5 days. Isolated major activities, concurrent or combined activities may have more than 20 working days when approved by the Engineer. A schedule will not be acceptable if it shows completion dates beyond the contract requirements for interim target dates, milestones or contract completion. The contract completion date shall be based on the working days designated in the contract and not on a proposed early completion shown in the schedule. The baseline schedule shall not attribute either negative float or lag to any activity.

The schedule submitted shall meet in all respects the time and order of work requirements of the contract. The work shall be executed in the sequence indicated in the accepted baseline schedule and subsequent accepted updates and revisions. The Contractor shall be responsible for assuring that all work sequences are logical and the network shows a coordinated plan for complete performance of the work. Failure of the Contractor to include any element of work required for the performance of the contract in the network shall not relieve the Contractor from completing all work within the time limit specified for completion of the contract. If the Contractor fails to define any element of work, activity or logic, and the omission or error is discovered by either the Contractor or the Engineer, it shall be corrected by the Contractor at the next scheduled monthly update or revision.

Once the Engineer accepts a CPM progress schedule, the Contractor shall not artificially improve his progress or change the quantity of float in any part of the schedule by adding or deleting activities, revising schedule logic restraints or changing planned activity durations. The Contractor may improve his progress by performing sequential activities concurrently or by performing activities more quickly than planned. In the case of multiple critical paths, float generated by early completion of one or a sequence of activities will be considered in determining if that sequence of activities remains on the critical path.

The Contractor shall allow 15 days for the Engineer to review and accept, reject or return for correction or clarification any schedule submitted.

The Contractor shall submit a revised CPM network within 15 days when requested by the Engineer, or when there is significant change in the Contractor's operations that will affect the critical path. These revisions shall be in addition to and separate from the regular required monthly updates.

An update is defined as a regular monthly review of the CPM schedule, as of the last monthly estimate, to incorporate actual progress to date by activity, any approved time adjustments and projected completion dates. A revision is defined as a change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences or durations. Float is defined as the amount of time between the early start date and late start date, or the early finish date and the late finish date, of any activity or group of activities in the network. Float shall not be considered as time for the exclusive use of or benefit of either the State or the Contractor. It shall be considered as a resource available

to both parties and shall not be used to the financial detriment of either party.

On or before the first calendar day of each month, the Contractor shall meet with the Engineer to review contract progress. The Contractor shall submit to the Engineer at the monthly progress meeting both a written narrative report and an update of the CPM schedule**.** The report shall identify and discuss potential problem areas; current and anticipated delaying factors and their impact; actions taken or proposed; proposed changes in CPM schedule logic; out of sequence work; and any other topics related to job progress or scheduling. The Contractor shall update the most recent schedule to incorporate all current schedule information, including actual progress, approved adjustments of time and proposed changes in sequence and logic.

Progress status shall be evaluated by the activities on the critical path at the time of updating. If the current updated CPM schedule indicates that the contract progress is 20 days or more behind the planned schedule, as determined by the Engineer, the Contractor shall submit to the Engineer a revised CPM schedule and an explanation of corrective action taken or proposed by the Contractor to complete the project within the time specified. Negative float indicates the activities are behind schedule and positive float indicates status ahead of schedule.

If the Contractor or the Engineer considers that an approved or anticipated change will impact the critical path or contract progress, a schedule analysis and revised CPM schedule supporting the proposed adjustment of time shall be submitted to the Engineer for discussion, review and acceptance. All changes shall be shown as separate activities or groups of activities and entered into the relevant part of the approved network schedule current at the time of change. If such a revision is not available, the Engineer may, at his option, construct and utilize the project as-built schedule, or other recognized method of delay impact analysis. In case of a deductive change reducing the quantity of work to be done under affected activities, the estimated duration of these activities shall be adjusted to reflect the reduced quantities of work. The Contractor shall submit a written report, describing the adjustments and reasons for the adjustments, and the impact of the changes.

The Engineer may use these and other information in evaluating the effect of the changes, delays, or time savings on the critical path and the accepted schedule current at the time to determine the applicable adjustment of time, if any, to any target date or completion date due to the changes, delays, or time savings.

Changes or delays that do not affect the controlling operation or operations on the critical path will not be considered as the basis for a time adjustment. Changes or delays that do affect the controlling operation or operations on the critical path will be considered in granting an extension of time for completion of the contract only if the total float is absorbed by the delay.

The Contractor shall provide for the State's exclusive possession and use a complete computer system specifically capable of creating, storing, updated and producing CPM schedules. It is the Contractor's responsibility to maintain and repair the computer system. The Engineer may use the furnished computer hardware, software and instruction manuals for any purposes relating to the subject project. Before delivery and setup of the computer system, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. The minimum computer system to be furnished shall include the following:

1. Complete computer system, including keyboard and monitor, using either an Intel 80486, with a math coprocessor, or a Motorola 68040 microprocessor chip.
2. Computer operating system software, compatible with the selected processing unit, for either MS-DOS 6.2, or later, system with 8 megabytes of random access memory (RAM) or MACINTOSH 7.5, or later, system with 8 megabytes of random access memory (RAM).
3. A 240 megabyte hard disk drive and a 1.44 megabyte 3 1/2-inch floppy disk drive.
4. A printer compatible with the selected system capable of printing fully legible, timescaled charts, network diagrams and reports.
5. CPM software, compatible with the hardware provided.

The computer hardware and software furnished by the Contractor shall be compatible with that used for the production of the CPM progress schedule required by the contract, including instruction manuals and other documentation normally provided with the software.

The Contractor shall furnish, install, set up, maintain and repair the computer hardware and software ready for use at a location determined by the Engineer. The hardware and software shall be installed and ready for use by the first submission of the progress schedule. When requested by the Engineer, the Contractor shall instruct and assist the Engineer in the use of the hardware and software.

All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. When contract claims involving contract progress are pending, computer hardware or software shall not be removed until the final estimate has been submitted to the Contractor.

Progress schedule (critical path) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path) shall include full compensation for furnishing all labor, materials (including computer hardware and software), tools, equipment, and incidentals; and for doing all the work involved in preparing, furnishing, updating, revising CPM progress schedules; maintaining and repairing the computer hardware; and instructing and assisting the Engineer in the use of the computer hardware and software, as specified in

these special provisions, and as directed by the Engineer. Payments for progress schedule (critical path) will be made as follows:

Five percent work completed and an accepted baseline, then 50 percent payment for progress schedule (critical path) will be made.

Twenty-five percent work completed and an accepted baseline, then 75 percent payment for progress schedule (critical path) will be made.

Fifty percent work completed and an accepted baseline, then 90 percent payment for progress schedule (critical path) will be made.

One hundred percent work completed, then 100 percent payment for progress schedule (critical path) will be made.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period, in which the Contractor fails to submit a baseline, revised or updated CPM schedule, conforming to the requirements of this section, as determined by the Engineer. Thereafter**;** on subsequent successive estimate periods the percentage the Department will retain will be increased at 25 percent per estimate period in which acceptable CPM progress schedules have not been submitted to the Engineer. Retentions for failure to submit acceptable CPM progress schedules shall be additional to all other retentions provided for in the contract. The retention for failure to submit acceptable CPM progress schedules will be released for payment on the next monthly estimate for partial payment following the date that acceptable CPM progress schedules are submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of progress schedule (critical path). Adjustments in compensation for progress schedule will not be made for any increased or decreased work ordered by the Engineer in furnishing progress schedules.

10-1.09 OBSTRUCTIONS

Attention is directed to Sections 8-1.10, "Utility and Non-Highway Facilities," and 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions be taken by the Contractor to protect the health, safety and welfare of workmen and of the public. Facilities requiring special precautions include, but are not limited to: conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than 150 mm (6 inches) in diameter or pipelines operating at pressures greater than 415 kPa (60 psi) gauge; underground electric supply system conductors or cables, with potential to ground of more than 300 volts, either directly buried or in duct or conduit which do not have concentric grounded conductors or other effectively grounded metal shields or sheaths.

The Contractor shall notify the Engineer and the appropriate regional notification center for operators of subsurface installations at least 10 working days, but not more than 14 calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure. Regional notification centers include but are not limited to the following:

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	1-800-642-2444
Underground Service Alert-Southern California (USA)	1-800-422-4133
South Shore Utility Coordination Council (DIGS)	1-800-541-3447
Western Utilities Underground Alert, Inc.	1-800-424-3447

10-1.10 MOBILIZATION

Mobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications.

10-1.11 CONSTRUCTION AREA SIGNS

Construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to commencing any excavation for construction area sign posts. The regional notification centers include but are not limited to the following:

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	1-800-642-2444 1-800-227-2600
Underground Service Alert-Southern California (USA)	1-800-422-4133 1-800-227-2600

All excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes.

Sign substrates for stationary mounted construction area signs may be fabricated from fiberglass reinforced

plastic as specified under "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Type IV reflective sheeting for sign panels for portable construction area signs shall conform to the requirements specified under "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

10-1.12 MAINTAINING TRAFFIC

Attention is directed to Sections 7-1.08, "Public Convenience," 7-1.09, "Public Safety," and 12, "Construction Area Traffic Control Devices," of the Standard Specifications and to the Section entitled "Public Safety" elsewhere in these special provisions, and these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7-1.09.

The minimum size specified for Type II flashing arrow signs in the table following the second paragraph of Section 12-3.03, "Flashing Arrow Signs," of the Standard Specifications is amended to read "36 inches by 72 inches".

In the Standard Plans, Note 10 on Standard Plan T10, Note 9 on Standard Plan T10A, Note 5 on Standard Plan T11, Note 6 on Standard Plan T12, Note 5 on Standard Plan T13, and Note 4 on Standard Plan T14 are revised to read:

All traffic cones used for night lane closures shall have reflective cone sleeves as specified in the specifications.

The second and third paragraphs of Section 12-3.10, "Traffic Cones," of the Standard Specifications are amended to read:

During the hours of darkness traffic cones shall be affixed with reflective cone sleeves. The reflective sheeting of sleeves on the traffic cones shall be visible at 1,000 feet at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Reflective cone sleeves shall conform to the following:

1. Removable flexible reflective cone sleeves shall be fabricated from the reflective sheeting specified in the special provisions, have a minimum height of 13 inches and shall be placed a maximum of 3 inches from the top of the cone. The sleeves shall not be in place during daylight hours.
2. Permanently affixed semitransparent reflective cone sleeves shall be fabricated from the semitransparent reflective sheeting specified in the special provisions, have a minimum height of 13 inches, and shall be placed a maximum of 3 inches from the top of the cone. Traffic cones with semitransparent reflective cone sleeves may be used during daylight hours.
3. Permanently affixed double band reflective cone sleeves shall have 2 white reflective bands. The top band shall be 6 inches in height, placed a maximum of 4 inches from the top of the cone. The lower band shall be 4 inches in height, placed 2 inches below the bottom of the top band. Traffic cones with double band reflective cone sleeves may be used during daylight hours.

The type of reflective cone sleeve used shall be at the option of the Contractor. Only one type of reflective cone sleeve shall be used on the project.

The C16 and C17 designations of the signs shown on the detail "Entrance Ramp Without Turning Pockets" of Standard Plan T14 are amended to designate the signs as R16 and R17, respectively.

Lane closures shall conform to the provisions in the section of these special provisions entitled "Traffic Control System for Lane Closure."

Personal vehicles of the Contractor's employees shall not be parked on the traveled way or shoulders, including any section closed to public traffic.

Whenever vehicles or equipment are parked on the shoulder within 6 feet of a traffic lane, the shoulder area shall be closed as shown on the plans.

Lanes shall be closed only during the hours shown on the charts included in this section "Maintaining Traffic." Except work required under said Sections 7-1.08 and 7-1.09, work that interferes with public traffic shall be performed only during the hours shown for lane closures.

All closures during any events scheduled at 3-Com Park and Bay Meadows Racecourse are subject to prior written approval by the Engineer.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Minor deviations from the requirements of this section concerning hours of work which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if in the opinion of the Engineer public traffic will be better served and the work expedited. Such deviations shall not be adopted until the Engineer has indicated his written approval. All other modifications will be made by contract change order.

LIQUIDATED DAMAGES.--Should the Contractor fail to provide all lanes ready for use by public traffic at the times specified in the “Lane Closure Charts” included in this section "Maintaining Traffic," on eastbound or westbound Route 92, liquidated damages will be assessed by the Department as follows:

For each 10 minute period, or fraction thereof, that all lanes are not available for use by public traffic as delineated on the charts, the amount of liquidated damage assessed will be $8,500.

The maximum amount of such assessment will be $153,000 per day.

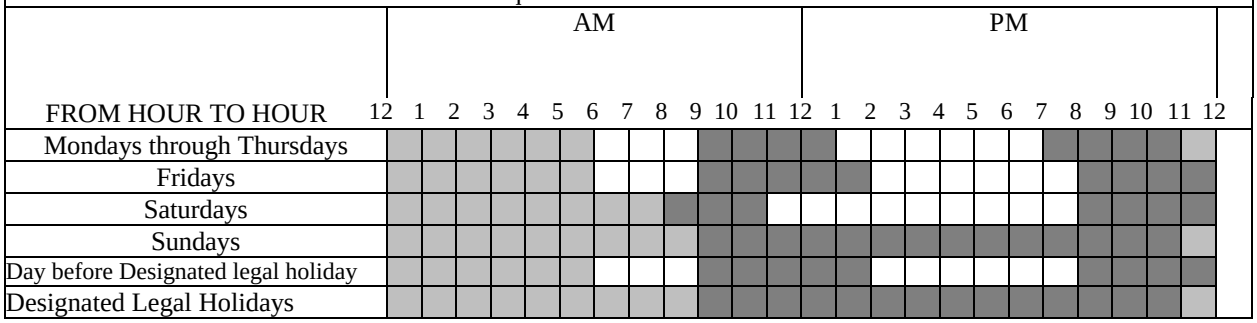
The Department will permanently reduce the amount of any contract moneys due to the contractor, or that may become due, by the amount of such damages.

It is expressly agreed by the parties that the specific degree of damage suffered by the traveling public is uncertain and cannot be readily ascertained with a high degree of accuracy and that, therefore, liquidated damages are appropriately established at the time of entering into the contract.

LANE CLOSURE CHART NO. 1

Location: Eastbound San Mateo-Hayward Bridge 04-92-SM-R14.2 to R16.8

Lane Requirements and Hours of Work



Legend:

One lane open in direction of travel

Two adjacent lanes open in direction of travel

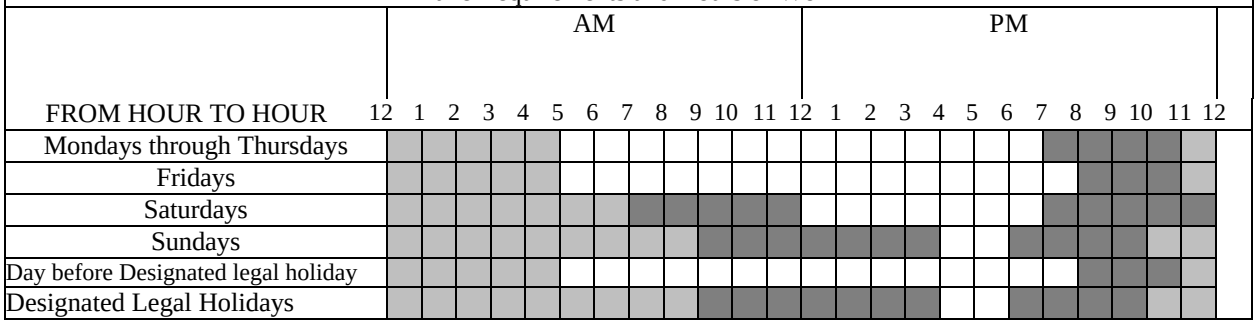
No lane closure allowed

REMARKS:

LANE CLOSURE CHART NO. 2

Location: Westbound San Mateo-Hayward Bridge 04-92-SM-R14.2 to R16.8

Lane Requirements and Hours of Work



Legend:

One lane open in direction of travel

Two adjacent lanes open in direction of travel

No lane closure allowed

REMARKS:

LANE CLOSURE CHART NO. 3

Location: Eastbound San Mateo-Hayward Bridge 04-92-SM-R16.8 to R18.8 04-92-ALA-R0.0 to R2.6

Lane Requirements and Hours of Work

	AM												PM											
FROM HOUR TO HOUR	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	■	■	■	■	■	■																			■
Fridays	■	■	■	■	■	■																			
Saturdays	■	■	■	■	■	■	■	■																	
Sundays	■	■	■	■	■	■	■	■	■																■
Day before Designated legal holiday	■	■	■	■	■	■																			
Designated Legal Holidays	■	■	■	■	■	■	■	■	■																■

Legend:

■ One lane open in direction of travel

□ No lane closure allowed

REMARKS:

LANE CLOSURE CHART NO. 4

Location: Westbound San Mateo-Hayward Bridge 04-92-SM-R16.8 to R18.8 04-92-ALA-R0.0 to R2.6

Lane Requirements and Hours of Work

	AM												PM											
FROM HOUR TO HOUR	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	■	■	■	■	■																				■
Fridays	■	■	■	■	■																				■
Saturdays	■	■	■	■	■	■	■																		
Sundays	■	■	■	■	■	■	■	■	■															■	■
Day before Designated legal holiday	■	■	■	■	■																				■
Designated Legal Holidays	■	■	■	■	■	■	■	■	■															■	■

Legend:

■ One lane open in direction of travel

□ No lane closure allowed

REMARKS:

10-1.13 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

A traffic control system shall consist of closing traffic lanes in accordance with the details shown on the plans, the provisions of Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs" elsewhere in these special provisions and these special provisions.

The provisions in this section will not relieve the Contractor from the responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

During traffic stripe operations and pavement marker placement operations using bituminous adhesive, traffic shall be controlled, at the option of the Contractor, with either stationary or moving type lane closures. During all other operations traffic shall be controlled with stationary type lane closures. The Contractor's attention is directed to the provisions in Section 84-1.04, "Protection From Damage," and Section 85-1.06, "Placement," of the Standard Specifications.

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the component to its original condition or replace the component and shall restore the component to its original location.

STATIONARY TYPE LANE CLOSURE.--When lane closures are made for work periods only, at the end of each work period, all components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations, approved by the Engineer, within the limits of the highway right of way.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining, or removing the components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining, or removing the components when operated within a stationary type lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on the vehicles which are doing the placing, maintaining and removing of components of a traffic control system, and shall be in place before a lane closure requiring its use is completed.

MOVING TYPE LANE CLOSURE.--Flashing arrow signs used in moving lane closures shall be truck-mounted. Changeable message signs used in moving lane closure operations shall conform to Section 12-3.12, "Portable Changeable Message Signs," of the Standard Specifications, except the signs shall be truck-mounted and the full operation height of the bottom of the sign may be less than 7 feet above the ground, but should be as high as practicable.

Truck-mounted crash cushions (TMCC) for use in moving lane closures shall be any of the following approved models, or equal:

(1)

Hexfoam TMA Series 3000 and
Alpha 1000 TMA Series 1000 and
Alpha 2001 TMA Series 2001

Manufacturer:	Distributor(Northern):
Energy Absorption Systems, Inc. One East Wacker Drive Chicago, IL 60601-2076 Telephone (312) 467-6750	Traffic Control Service, Inc. 8585 Thys Court Sacramento, CA 95828 Telephone (800) 884-8274 FAX (916) 387-9734
	Distributor(Southern):
	Traffic Control Service, Inc. 1881 Betmor Lane Anaheim, CA 92805 Telephone (800) 222-8274

(2)

Cal T-001 Model 2 or Model 3

Manufacturer:	Distributor:
Hexcel Corporation 11711 Dublin Blvd. P.O. Box 2312 Dublin, CA 94568 Telephone (510) 828-4200	Hexcel Corporation 11711 Dublin Blvd. P.O. Box 2312 Dublin, CA 94568 Telephone (510) 828-4200

(3)

Renco Rengard Model Nos.
CAM 8-815 and RAM 8-815

Manufacturer:	Distributor:
Renco Inc. 1582 Pflugerville Loop Road P.O. Box 730 Pflugerville, TX 78660-0730 Telephone (800) 654-8182	Renco Inc. 1582 Pflugerville Loop Road P.O. Box 730 Pflugerville, TX 78660-0730 Telephone (800) 654-8182

Each TMCC shall be individually identified with the manufacturer's name, address, TMCC model number, and

a specific serial number. The names and numbers shall each be a minimum 1/2 inch high, and located on the left (street) side at the lower front corner. The TMCC shall have a message next to the name and model number in 1/2 inch high letters which states, "The bottom of this TMCC shall be _____ inches ±_____ inches above the ground at all points for proper impact performance." Any TMCC which is damaged or appears to be in poor condition shall not be used unless recertified by the manufacturer. The Engineer shall be the sole judge as to whether used TMCCs supplied under this contract need recertification. Each unit shall be certified by the manufacturer to meet the requirements for TMCCs in accordance with the standards established by the Transportation Laboratory Structures Research Section.

Approvals for new TMCC designs proposed as equal to the above approved models shall be in accordance with the procedures (including crash testing) established by the Transportation Laboratory Structures Research Section. For information regarding submittal of new designs for evaluation contact:

Transportation Laboratory
Structures Research Section
P.O. Box 19128
5900 Folsom Boulevard
Sacramento, CA 95819

New TMCCs proposed as equal to approved TMCCs or approved TMCCs determined by the Engineer to need recertification shall not be used until approved or recertified by the Transportation Laboratory Structures Research Section.

PAYMENT.--The contract lump sum price paid for traffic control system shall include full compensation for furnishing all labor, materials (including signs), tools, equipment and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control system as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Traffic control system required by work which is classed as extra work, as provided in Section 4-1.03D of the Standard Specifications, will be paid for as a part of the extra work.

10-1.14 CHANNELIZERS

Channelizers shall be surface mounted type and shall be furnished, placed and maintained at the locations shown on the plans and shall conform to the provisions in Sections 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Channelizers shall conform to the provisions in "Prequalified and Tested Signing and Delineation Materials," elsewhere in these special provisions.

Channelizer posts shall be orange in color.

At the option of the Contractor, channelizer bases may be cemented to the pavement using hot melt bitumen adhesive and in the same manner provided for cementing pavement markers to pavement in the section of these special provisions entitled "Pavement Markers."

At the time of completion of the project, certain channelizers shall be left in place as directed by the Engineer. In addition to the contract unit price paid for channelizer (surface mounted), the cost of leaving the channelizers in place will be paid for at the contract unit price for channelizer (surface mounted) (left in place).

10-1.15 TEMPORARY CRASH CUSHION MODULE

This work shall consist of furnishing, installing and maintaining sand filled temporary crash cushion modules in groupings or arrays at each location shown on the plans, specified in the special provisions or directed by the Engineer. The grouping or array of sand filled modules shall form a complete sand filled temporary crash cushion in accordance with the details shown on the plans and these special provisions.

Attention is directed to "Public Safety" of these special provisions.

GENERAL.--Whenever the work or the Contractor's operations establishes a fixed obstacle, the exposed fixed obstacle shall be protected with a sand filled temporary crash cushion. The sand filled temporary crash cushion shall be in place prior to opening the lanes adjacent to the fixed obstacle to public traffic.

Sand filled temporary crash cushions shall be maintained in place at each location, including times when work is not actively in progress. Sand filled temporary crash cushions may be removed during a work period for access to the work provided that the exposed fixed obstacle is 15 feet or more from a lane carrying public traffic and the temporary crash cushion is reset to protect the obstacle prior to the end of the work period in which the fixed obstacle was exposed. When no longer required, as determined by the Engineer, sand filled temporary crash cushions shall be removed from the site of the work.

MATERIALS.--At the Contractor's option, the modules for use in sand filled temporary crash cushions shall be either of the following types or equal:

Energite Inertial Modules

Manufacturer:

Energy Absorption Systems, Inc.
One East Wacker Drive
Chicago, IL 60601-2076
Telephone (312) 467-6750

Distributor(Northern):

Traffic Control Service, Inc.
8585 Thys Court
Sacramento, CA 95828
Telephone (800) 884-8274
FAX (916) 387-9734

Distributor(Southern):

Traffic Control Service, Inc.
1881 Betmor Lane
Anaheim, CA 92805
Telephone (800) 222-8274

or Fitch Inertial Modules

National Distributor:

Roadway Safety Service, Inc.
700-3 Union Parkway
Ronkonkoma, NY 11779

Distributor:

Singletree Sales Company
1533 Berger Drive
San Jose, CA 95112
Telephone (800) 822-7735

Modules contained in each temporary crash cushion shall be of the same type at each location. The color of the modules shall be the standard yellow color as furnished by the vendor, with black lids. The modules shall exhibit good workmanship free from structural flaws and objectionable surface defects. The modules need not be new. Good used undamaged modules conforming to color and quality of the types specified above may be utilized. If used Fitch modules requiring a seal are furnished, the top edge of the seal shall be securely fastened to the wall of the module by a continuous strip of heavy duty tape.

Modules shall be filled with sand in accordance with the manufacturer's directions, and to the sand capacity in pounds for each module as shown on the plans. Sand for filling the modules shall be clean washed concrete sand of commercial quality. At the time of placing in the modules, the sand shall contain not more than 7 percent water, as determined by California Test 226.

Modules damaged due to the Contractor's operations shall be repaired immediately by the Contractor at his expense. Modules damaged beyond repair, as determined by the Engineer, due to the Contractor's operations shall be removed and replaced by the Contractor at his expense.

INSTALLATION.--Temporary crash cushion modules shall be placed on movable pallets or frames conforming to the dimensions shown on the plans. The pallets or frames shall provide a full bearing base beneath the modules. The modules and supporting pallets or frames shall not be moved by sliding or skidding along the pavement or bridge deck.

A Type R or P marker panel shall be attached to the front of the crash cushion as shown on the plans, when the closest point of crash cushion array is within 12 feet of the traveled way. The marker panel, when required, shall be firmly fastened to the crash cushion with commercial quality hardware or by other methods approved by the Engineer.

At the completion of the project, temporary crash cushion modules, sand filling, pallets or frames, and marker panels shall become the property of the Contractor and shall be removed from the site of the work. Temporary crash cushion modules shall not be installed in permanent work.

MEASUREMENT AND PAYMENT.--Temporary crash cushion modules placed in accordance with the provisions in "Public Safety" elsewhere in these special provisions will not be measured nor paid for.

10-1.16 EXISTING HIGHWAY FACILITIES

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities," of the Standard Specifications and these special provisions.

Plans of the existing bridges are available at the Office of Structure Maintenance and Investigations, 1801 30th Street, Sacramento, CA, Telephone (916) 227-8786.

Plans of existing bridges available to the Contractor are reproductions of the original contract plans with significant changes noted and working drawings and do not necessarily show normal construction tolerances and variances. Where dimensions of new construction required by this contract are dependent on the dimensions of existing bridges, the Contractor shall verify the controlling field dimensions and shall be responsible for adjusting dimensions of the work to fit existing conditions.

10-1.16A REMOVE PAVEMENT MARKERS

Existing pavement markers, when no longer required for traffic lane delineation as directed by the Engineer, shall be removed and disposed of.

10-1.16B REMOVE CHANNELIZERS

Channelizers shall be removed at the locations shown on the plans or as directed by the Engineer.

10-1.16C BRIDGE REMOVAL

Removing portions of bridge shall conform to the requirements in Section 15-4, "Bridge Removal," of the Standard Specifications and these special provisions.

Bridge removal (portion) shall consist of removing a portion of the superstructure, barrier, stairwell platform, girder restrainers, and tubular railing near bent 285, as shown on the plans.

All removed materials that are not to be used in the reconstruction shall become the property of the Contractor and shall be disposed of outside the highway right of way

in accordance with the provisions in Section 7-1.13 of the Standard Specifications.

The Contractor shall submit a complete bridge removal plan to the Engineer detailing procedures and sequence for removing portions of bridge, including all features necessary to remove the bridges in a safe and controlled manner.

The bridge removal plan shall be furnished for the hinge near bent 285 of the San Mateo - Hayward Bridge and shall include the following:

The bridge removal sequence for the hinge, including staging of bridge removal;

Equipment locations on the structure during removal operations;

Temporary support shoring or temporary bracing; and

Details and locations of protective covers or other measures to assure that people, property and improvements will not be endangered.

Temporary support shoring, temporary bracing, and protective covers as required, shall be designed and constructed in conformance with the provisions in Section 51-1.06, "Falsework," of the Standard Specifications and the following:

The assumed horizontal load to be resisted by the temporary support shoring, and temporary bracing, for removal operations only, shall be the sum of the actual horizontal loads due to equipment, construction sequence or other causes and an allowance for wind, but in no case shall the assumed horizontal load to be resisted in any direction be less than 5 percent of the total dead load of the structure to be removed.

The following additional requirements apply to the removal of portions of bridges that are over or adjacent to roadways that may be closed to public traffic for only brief periods of time:

The closure of portions of roadways to public traffic shall conform to the requirements "Maintaining Traffic" of these special provisions.

Prior to closing portions of a roadway to traffic to accommodate bridge removal operations, the Contractor shall have all necessary men, materials and equipment at the site as needed to proceed with the removal work in an expeditious manner. While the roadway is closed to traffic, work shall be pursued promptly and without interruption until the roadway is reopened to public traffic.

All removal operations shall be performed during periods of time that the roadway is closed to public traffic except as specified herein for preliminary work.

Preliminary work shall be limited to operations that will not reduce the structural strength or stability of the bridge, or any element thereof, to a level which in the judgment of the Engineer would constitute a hazard to the public. Such preliminary work shall also be limited to operations that cannot cause debris or any other material to fall onto the roadway. Protective covers may be used in order to perform preliminary work such as chipping or cutting the superstructure into segments, provided the covers are of sufficient strength to support all loads and are sufficiently tight to prevent dust and fine material from sifting down onto the traveled way. Protective cover shall extend at least 4 feet beyond the limit of the work underway. Bottom slabs of box girders may be considered to be protective covers for preliminary work performed on the top slab inside the limits of the exterior girders.

Temporary support shoring, temporary bracing, and protective covers shall not encroach closer than 8 feet horizontally from the edge or 15 feet vertically above any traffic lane or shoulder that is open to traffic.

The removal operations shall be conducted in such a manner that the portion of the structure not yet removed remains in a stable condition at all times.

The Contractor shall submit to the Engineer working drawings, with design calculations, for the proposed bridge removal plan. The bridge removal plan shall be prepared by an engineer who is registered as a Civil Engineer in the State of California. The design calculations shall be adequate to demonstrate the stability of the structure during all stages of the removal operations. Calculations shall be provided for each stage of bridge removal and shall include dead and live load values assumed in design of protective cover. At a minimum, a stage will be considered to be removal of the deck, the soffit, or the girders, in any span; or walls, bent caps or columns at support locations.

The bridge removal plan shall conform to the requirements in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The number of sets of drawings and design calculations and times for review for any bridge removal plans shall be the same as specified for falsework working drawings in Section 51-1.06A, "Falsework Design and Drawings," of the Standard Specifications.

The time to be provided for the Engineer's review of the working drawings for removing specific structures, or portions thereof, shall be as follows:

Structure or Portion of Structure	Review Time - Weeks
San Mateo-Hayward Bridge	4

Approval by the Engineer of the bridge removal plans or field inspection performed by the Engineer will in no

way relieve the Contractor of full responsibility for the bridge removal plan and procedure.

Prior to proceeding with bridge removal where bridge removal plan is required, an engineer for the Contractor who is registered as a Civil Engineer in the State of California shall inspect the temporary support shoring, including temporary bracing and protective coverings, for conformity with the working drawings. The Contractor's registered engineer shall certify in writing that the temporary support shoring, including temporary bracing and protective coverings, substantially conform to the details on the working drawings, and that the material and workmanship are satisfactory for the purpose intended. A copy of this certification shall be available at the site of the work at all times.

The Contractor's registered engineer shall be present at the bridge site where bridge removal plan is required at all times when bridge removal operations are in progress. The Contractor's registered engineer shall inspect the bridge removal operation and report in writing on a daily basis the progress of the operation and the status of the remaining structure. A copy of the daily report shall be available at the site of the work at all times. Should an unplanned event occur, the Contractor's registered engineer shall submit immediately to the Engineer for approval, the procedure of operation proposed to correct or remedy the occurrence.

10-1.16D REMOVE CONCRETE DECK SURFACE

This work shall consist of removing portions of the portland cement concrete deck surface to a depth of 3/4", abrasive blasting and blowing clean the deck surface as shown on the plans and as described in these special provisions.

The method of concrete removal shall be selected by the Contractor except that scarifiers, coldplaners, scabblers and similar types of equipment or procedures that leave fractured aggregate or otherwise damage the concrete surface to remain shall not be used.

Coarse aggregate remaining above the specified removal depth shall be firmly embedded in the remaining concrete.

High pressure water jet equipment, when used, shall have rotating jets and be rated at no less than 30,000 psi. Adequate means shall be used to prevent water from the jetting operation from flowing across traffic lanes, or flowing into gutters or waterways.

The surface of the deck, following concrete removal, shall be abrasive blast cleaned. The deck shall be dry when blast cleaning is performed.

Adequate means shall be used to prevent the abrasive and the residue, including dust, from blowing into gutters or the waterway.

If the surface becomes contaminated at any time prior to placing the overlay, the surface shall be cleaned by abrasive blasting.

Where abrasive blasting is being performed within 10 feet of a lane occupied by public traffic, the residue including dust shall be removed immediately after contact between the abrasive and the surface being treated. Such removal shall be by a vacuum attachment operating concurrently with the abrasive blasting operation.

Nothing in these special provisions shall relieve the Contractor from his responsibilities as provided in Section 7-1.09, "Public Safety," of the Standard Specifications.

Equipment shall be fitted with suitable traps, filters, drip pans or other devices, as necessary, to prevent oil or other deleterious material from being deposited on the deck.

All removed materials shall become the property of the Contractor and shall be disposed of in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Remove concrete deck surface will be measured by the square foot of concrete deck surface to be removed based on dimensions shown on the plans.

The contract price paid per square foot for remove concrete deck surface shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in removing concrete deck surface, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.16E PREPARE CONCRETE BRIDGE DECK SURFACE

This work shall consist of cleaning the portland cement concrete deck surface by using steel shot-blasting and blowing clean the deck surface, as shown on the plans and as described in these special provisions.

All laitance and surface contaminants including, but not limited to rust, oil, paint, joint material, and other foreign material shall be cleaned from the surface of the existing concrete deck.

Adequate means shall be used to prevent the abrasive and the residue, including dust, from blowing into gutters or waterways.

If the surface becomes contaminated at any time prior to placing the primer for the overlay, the surface shall be cleaned by abrasive blasting.

Where abrasive blasting is being performed within 10 feet of a lane occupied by public traffic, the residue including dust shall be removed immediately after contact between the abrasive and the surface being treated. Such removal shall be by a vacuum attachment operating concurrently with the abrasive blasting operation.

Nothing in these special provisions shall relieve the Contractor from his responsibilities as provided in Section 7-1.09, "Public Safety," of the Standard Specifications.

Equipment shall be fitted with suitable traps, filters, drip pans or other devices, as necessary, to prevent oil or other deleterious material from being deposited on the deck.

Equipment or procedures that leave fractured aggregate or otherwise damage the concrete surface which is to remain shall not be used.

Removal of slurry or chip seal contrast treatment will be paid for as extra work as provided in Section 4-l.03D of the Standard Specifications.

All removed materials shall become the property of the Contractor and shall be disposed of in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Preparing concrete bridge deck surface will be measured by the square foot of surface which is prepared to receive the overlay, based on dimensions shown on the plans.

The contract price paid per square foot for prepare concrete bridge deck surface shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in preparing the concrete bridge deck surface complete in place, except removal of slurry or chip seal contrast treatment, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.16F JACKING SUPERSTRUCTURE

Jacking superstructure shall consist of raising and lowering the hinge near bent 285 of the San Mateo - Hayward Bridge (Bridge No. 35-0054) as shown on the plans and in accordance with the requirements in these special provisions.

GENERAL.- -Attention is directed to "Order of Work" and "Maintaining Traffic," elsewhere in these special provisions.

The Contractor shall design any necessary temporary supports for the superstructure and determine the methods and equipment for raising and lowering the superstructure.

At least 5 weeks before starting the work the Contractor shall submit to the Engineer complete calculations, details and working drawings of the temporary supports, methods and equipment he proposes to use in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Working drawings and calculations shall be signed by an engineer who is registered as a Civil Engineer in the State of California.

RAISING AND LOWERING OPERATIONS.- -The supports and jacking equipment shall accommodate the structure dead loads and live loads shown on the plans and any additional loads due to the Contractor's operations. The raising and lowering system shall provide total stability of the structure throughout the raising and lowering operations.

Systems involving modifications to the bridge that impair the structural integrity, intended serviceability or design capacity of the bridge shall not be used.

A redundant system of supports for back-up should the primary raising and lowering system fail shall be provided. Such redundant system shall include stacks of steel plates that will be removed one by one as the superstructure is lowered. Steel plates shall be maintained to within 3/4 inch of the bottom of the superstructure girders during the entire raising and lowering process.

Monitoring and control devices to assure proper load distribution, raising, and lowering shall be provided. The superstructure shall be raised and lowered uniformly without distortion that would cause damage to the structure.

The superstructure shall be raised and lowered to the position shown on the plans so that the load is distributed uniformly across each deck unit. Galvanized shims shall be placed, as approved by the Engineer, when they are required to provide uniform loading at bearing pads.

Damage to the structure as a result of the Contractor's operations shall be repaired or replaced by the Contractor at his expense in accordance with the requirements for new work of similar character.

After raising and lowering the superstructure, all members installed on the bridge for jacking the superstructure shall be removed.

PAYMENT.- -Jacking superstructure will be paid for on the basis of a lump sum price. The contract lump sum price paid for jacking superstructure shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in jacking the superstructure (including shimming at bearing pads), complete in place as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.16G TEMPORARY DECK BRIDGING

Where existing deck concrete is removed and the Contractor is unable, as determined by the Engineer, to construct the new deck, including curing concrete, by the time the effected portion of the deck is to be opened to traffic, the gap created shall be bridged with the temporary deck bridging.

Temporary deck bridging, which will carry vehicular traffic over areas where any portion of bridge deck has been removed, shall be designed, constructed, monitored, maintained and removed as specified in these special provisions.

Attention is directed to "Maintaining Traffic," of these special provisions.

DESIGN AND WORKING DRAWINGS.--The Contractor shall submit to the Engineer working drawings and design calculations for the temporary deck bridging. Such drawings and design calculations shall be signed by

an engineer who is registered as a Civil Engineer in the State of California. Five sets of the drawings and one copy of the design calculations shall be furnished.

The temporary deck bridging working drawings shall conform to the requirements in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Working drawings for any part of the temporary deck bridging shall include, but not be limited to stress calculations sheets, connection details, modifications to existing bridge members, shop details, erection and removal plans, and equipment lists.

The working drawings shall include descriptions and values of all loads, including construction equipment and vehicular live loads, descriptions of equipment to be used, and complete details and calculations for supporting all loads imposed.

The Contractor shall allow four weeks for the review of any temporary deck bridging working drawings after complete drawings, calculations and all support data have been submitted to the Engineer.

Should the Engineer fail to complete the review within the time allowed and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in temporary deck bridging working drawing review, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The temporary deck bridging shall be mechanically connected to the existing structure while subjected to vehicular loads and shall not overstress, induce permanent forces into or produce cracking in the existing structure.

The temporary deck bridging shall support dead loads, vehicular live loads , dead loads, construction equipment loads and additional loads imposed by the Contractor's operations. The construction equipment loads shall be the actual weight of the construction equipment.

The temporary deck bridging shall have a uniform surface texture that provides a coefficient of friction of not less than 0.35.

Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2), “Design Stresses, Loadings, and Deflections,” of the Standard Specifications and these special provisions.

CONSTRUCTION.--Temporary deck bridging construction shall conform to the requirements in the first paragraph of Section 51-1.06B, "Falsework Construction," of the Standard Specifications.

Welding, welder qualification, and inspection of welding shall conform to the requirements of ANSI/AASHTO/AWS D1.5.

At least 5 days prior to removing portions of the existing deck, the Contractor shall provide the temporary deck bridging components at a location within 30 minutes of the jobsite.

Should unanticipated displacements, cracking or other damage occur to the existing structure or to any new components installed at the gap, the construction shall be discontinued until corrective measures satisfactory to the Engineer are performed. Damage to the structure as a result of the Contractor's operations shall be repaired by the Contractor according to the requirements in Section 7-1.11, "Preservation of Property," of the Standard Specifications.

The temporary deck bridging surface shall not vary more than 1/4 inch vertically or 1/2 inch horizontally from the existing adjacent deck surface.

When not in use, the temporary deck bridging components shall be stored at a location within 30 minutes of the jobsite at all times during deck reconstruction work.

When temporary deck bridging is no longer needed to bridge the gap, all temporary deck bridging and connections shall be removed from the existing structure, and the concrete surfaces beyond the limits of removal shown on the plans shall be restored to their original condition.

PAYMENT.-- Full compensation for temporary deck bridging shall be considered as included in the contract price paid per pound for deck plate assembly and no separate payment will be made therefor.

10-1.17 CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the Standard Specifications and these special provisions.

Attention is directed to "Aerially Deposited Lead, General" elsewhere in these specifications.

Clearing and grubbing operations shall result in no visible dust. No material containing lead shall be deposited on public roads. The Contractor shall indemnify the State from any costs due to spillage of material containing lead during transport.

The Contractor shall separate soil from vegetation, and the soils will remain on the site.

All activities controlled by the Contractor, except cleanup or other required work, shall be confined within the graded areas of the roadway.

10-1.18 EARTHWORK

Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

10-1.18A CONTAMINATED MATERIAL

All contaminated material to be cleaned out of the open end of the steel shells shall be transported to a disposal facility permitted to accept such material. Such material shall meet the disposal facility’s requirements for maximum moisture content.

Attention is directed to "Contaminated Material, General," "Dredging," and "Open Ended Cast-in-Steel Concrete Piling" elsewhere in these special provisions.

Upon completion of contaminated material clean-out and disposal , physical barriers and personal protective equipment, when no longer

required, as determined by the Engineer, shall be removed from the job site.

The Contractor shall implement a plan to prevent exposure of personnel working in contaminated material clean out and disposal . The Contractor's plan to prevent exposure of personnel shall consist of a physical barrier. The barrier shall be maintained by the Contractor. When no longer required, as determined by the Engineer, the physical barrier shall be removed and either decontaminated or disposed of by the Contractor.

MEASUREMENT AND PAYMENT.--Full compensation for loading, temporary stockpiling, transporting, and disposing of contaminated material, furnishing, installing and removing physical barriers, shall be considered as included in the contract price paid per unit for drive pile and no additional compensation will be allowed therefor.

10-1.18B MATERIAL WITH AERIALLY DEPOSITED LEAD

Attention is directed to "Aerially Deposited Lead, General" elsewhere in these special provisions.

All material excavated from areas containing aerially deposited lead shall be used as backfill or dispersed within the project limits in accordance with Section 19-2.06, "Surplus Material," of the Standard Specifications. None of these materials shall be disposed of outside the highway right of way.

Full compensation for conforming to the requirements of this section involving materials containing aerially deposited lead, except as otherwise specifically provided in these special provisions, shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

10-1.18C DREDGING

All excavation involved with the removal and disposal of the bay sediment material from the open end of the steel shells shall be considered dredging under the terms of the various permits obtained by the Department. Attention is directed to “Permits and Licenses”, “Contaminated Material, General”, and “Contaminated Material” of these special provisions.

The Contractor shall provide construction access to accomplish the work without dredging. Dredging will not be allowed to provide barge or equipment access to the various sites.

Dredging shall be completed by using approved methods that will clean out and dispose of the material in the steel shells where required to complete the work in accordance with these special provisions. Unless otherwise authorized, all dredging shall be performed in the presence of the Engineer

Dredging will be limited to the locations specified in these special provisions, as shown on the plans, and as deemed necessary by the Engineer to accomplish the construction.

Dredging shall be in accordance with the provisions of the various permits obtained by the Department. All dredged material shall be disposed of according to the permit requirements and these special provisions.

Dredging Plan: Prior to beginning any dredging work, the Contractor shall submit a dredging plan for approval by the Engineer. Dredging shall not commence until all comments have been answered to the satisfaction of the Engineer. The plan shall show order of dredging, barge anchoring locations, description of barge overflow operations, description of slurry operations, environmental pollution control measures, instrumentation used, coordinates and land elevations of all control points for electronic positioning system and Mean Sea Level (MSL) determination, estimated daily dredge advances, quality control procedures, anticipated problem areas of project involving poor access due to boat traffic congestion, boat docking, and procedures to assure that dredging will proceed within the contract limits and performed in an economical manner. The quality control information shall include:

1) A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the contractor quality control staff shall conduct the inspections for all aspects of the work specified and shall report to the Project Manager, or someone of higher authority, in the Contractor’s organization.

2) The name, qualifications, duties, responsibilities and authorities of each person assigned a quality control function.

3) A copy of the letter to the Contractor’s Quality Control (CQC) manager signed by an authorizing official of the firm, which describes the responsibilities and delegates the authorities of the CQC manager shall be furnished and shall be countersigned by the CQC manager acknowledging receipt of responsibilities and duties.

4) Reporting procedures and methods used to obtain information for quality control forms, including the submittal of displacement and capacity charts for all scows.

The dredging plan shall be updated on a weekly basis to allow notification to harbor and boat owners of dredge progress. The dredging plan shall include notices, schedules, plans, and controls needed to complete all the required dredging and disposal of material excavated from the Bay.

Overflow: No overflow of dredged material or water will be allowed from the receiving barges or dump scows during the dredging operations.

Overflow will only be allowed if the Contractor includes provisions and operations acceptable to the Regional Water Quality Control Board and is approved in the Storm Water Pollution Prevention Plan prepared by the Contractor, as approved by the Engineer.

During transport to the disposal sites, water and dredged material shall not be permitted to overflow, spill, or leak out of barges or dump scows.

Monitoring of overflow time and leakage shall be as specified for quality control of dredging in these special provisions. The Contractor shall record draft of hull for each scow load as specified under quality control.

In the event the Contractor chooses to fill a receiving barge or dump scow, the receiving vessel shall be located in an approved anchor site. The Contractor shall be required to perform both a pre-dredge and a post-survey of the anchor site by means of an independent surveyor and the Contractor shall be required to remove any shoals attributed to his operation at no additional cost to the State. Surveys shall be in compliance with the requirements for "Hydrographic Surveys" elsewhere in these special provisions.

Control and Monitoring Surveys: A short to medium range Electronic Positioning System (EPS) shall be provided on all vessels involved in dredging operations. The EPS shall be established, operated and maintained by the Contractor during the period of the contract when dredging work is actively underway. The EPS using range-range methods shall display and record the vessel's location continuously during dredging and transport for disposal.

The EPS system shall be similar or equal in design, performance, accuracy, operating characteristics, and frequency to those identified in the following technical reference, which is available for purchase at the listed source, or which may be reviewed at the Construction-Operations Division, San Francisco District Office, 333 Market Street, San Francisco, California.

"Hydrographic Surveying"
Department of the Army
Engineering Manual No. 1110-2-1003
28 February 1991
USACE Publications Depot
2803 52nd Avenue
Hyattsville, MD 20781-1102

The Contractor shall be responsible for establishing the horizontal control to locate active and/or passive shore-based EPS transmitter/receiver devices. All control shall meet Third Order, Class I, accuracy standards as defined (and referenced) under chapter 2 of the Army Corps of Engineers Manual " Hydrographic Surveying". The Contractor shall obtain all right-of-entry permits and/or leases as required to operate and maintain shore-based electronic equipment on public/private property at no additional cost to the State.

EPS calibration techniques shall conform to standard hydrographic surveying practice consistent with minimization of systematic errors inherent to and consistent with the selected EPS system as specified under Chapter 6 of the Army Corps of Engineers manual "Hydrographic Surveying". The Contractor shall be responsible for accurate and reliable EPS calibration for the duration of this contract.

Transporting and Upland Disposal: The Contractor shall transport and dispose of the dredged material in accordance with these special provisions. Attention is directed to "Contaminated Material, General", "Contaminated Material", and "Site Investigation" of these special provisions and the conditions of the various permits obtained by the State for this contract.

During transport to the disposal sites, water and dredged material shall not be permitted to overflow, spill, or leak out of the barges or dump scows. The maximum tow speed shall be 6 knots for loaded barges.

A complete description of the Contractor's plan for disposal, procedures used and schedules shall be defined in the dredging plan to the satisfaction of the Engineer.

Full compensation for transporting and disposing of the dredged material in accordance with the standard specifications and these special provisions shall be considered included in the contract price paid for drive pile and no additional compensation will be allowed therefor.

Overflow and Leakage Monitoring Requirements--The Contractor shall furnish a diagram of the location of all overflow weirs for the barges and dump scows indicating the initial elevation of each weir relative to hopper bin curb height. Each change in elevation of a weir during the dredging work shall be indicated on the diagram. For barge overflow, where allowed, the Contractor shall furnish a diagram of the location and elevation of the overflow.

Barges or dump scows having more than 10% loss in draft while transporting material to the disposal site shall be recorded on the daily quality control report and shall not be used until repaired.

Full compensation for conforming to the requirements of this section, "Dredging," shall be

10-1.18D HYDROGRAPHIC SURVEYS

The Contractor shall be responsible for providing an independent surveyor to perform the pre-dredge and post-dredge surveys for final payment, interim surveys for performing the related computations and

furnishing the drawings consistent with industry standards.

The independent surveyor's equipment and work force shall be independent from the Contractor's. The name of the surveyor and samples of previous hydrographic work shall be submitted to the Engineer for review at the survey conference.

The independent surveyor shall be required to document and certify in writing to the Engineer that he has at least three years of experience in hydrographic surveying of navigable channels and possess either a current land surveyor's or professional engineer's license valid in California or an American Congress on Surveying and Mapping (ACSM) certification as an "Inshore Certified Hydrographic Surveyor." He shall provide documentation indicating that modern electronic horizontal positioning and depth finding equipment are available for the surveys to be performed including DGPS (Differential Global Positioning System) capability and shall include as a minimum, the name, model, and year of manufacture of the electronic equipment, the electronic frequencies of the horizontal positioning equipment and the depth finding equipment, and the manufacturer's stated positioning accuracy an capability of the equipment proposed for usage. In addition, he shall provide information that a safe and suitable vessel is available for operation in the water where the surveys are to be performed, and that experienced staff are available for the operation of the vessel as well as the electronic positioning and depth finding equipment calibration. Accuracy and other standards outlined in the U.S. Department of Army, Corps of Engineers manual "Hydrographic Surveying" (EM 1110-2-1003, October 1994 or latest version), specified in section "Dredging" for Class 2 hydrographic surveys shall be followed when performing all surveys for payment.

Contractor hydrographic survey procedures (positioning modes, EPS calibration, accuracy requirements, depth measurement/calibration, and data reduction, adjustment, processing, and plotting) shall conform to the hydrographic survey manual. Water depths shall conform to the NGVD29 vertical datum with a clearly marked correction to the Mean Lower Low Water (MLLW) vertical datum. Data recordation, annotation, and processing procedures shall be in accordance the hydrographic survey manual specified above and these specifications. Failure to perform and process such surveys in accordance with the above referenced manual and these specifications will result in a rejection and nonpayment for work performed. All systems and methods shall be subject to the Engineers' approval. All vertical control shall be of second order accuracy, including levels for setting the tide gage to MLLW elevation. An automatic electronic tide recording system shall be required during all surveying and dredging operations. Survey data shall include tidal cycle(s) (whether ebb, flood or slack tide conditions) for surveys performed

The Contractor shall submit all drawings, computations, and field notes within ten (10) calendar days after completion of each survey. Two sets of drawings, computations, and field notes are required for each survey.

The Contractor shall submit to the Engineer the ASCII files of raw and corrected survey data for each survey. Data shall be on 31/2" (1.44 MB) disks, operating under MS-DOS 3.1 or newer version. The files shall have hydrosurvey information, in both raw and adjusted format. The raw data shall be original data from the hydrosurvey computer. The record of raw data shall be comma delimited and consist of the following information: index, "x" coordinate; "y" coordinate; "z" elevation; and time. All alternatives shall be approved by the Engineer.

The Contractor shall provide a complete listing of hydrographic equipment he will use on the project prior to the survey conference specified herein below.

At least five (5) calendar days prior to performing any survey, the person responsible for that survey: the Contractor's chief surveyor and/or the independent surveyor, shall meet with the Engineer in a survey conference to be held at such location as determined by the Engineer to outline the scope of survey and section interval.

The Contractor shall perform quality control pre- and post-dredging hydrographic surveys during this contract. These surveys shall verify that all foundation excavation dimensions are being obtained as specified. All surveys shall begin where dredging commenced and end as close as possible to last dredging position.

Contractor shall record any natural event that would create shoaling of previously dredged areas of the project (e.g., sever storms and earthquakes.)

Full compensation for performing the pre- and post-dredge surveys, progress payment surveys and quality control surveys, including furnishing data, computations and drawings, shall be considered as included in the contract unit price paid for drive pile and no additional payment will be allowed therefor.

10-1.19 PILING

Piling shall conform to the provisions in Section 49, "Piling," of the Standard Specifications, and these special provisions.

Foundation recommendations are included in the "Materials Information" available to the Contractor as provided for in Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," of the Standard Specifications.

Attention is directed to the provisions of Section 7-1.09, "Public Safety," of the Standard Specifications. Before performing any pile handling or pile installation

operation at any location that is closer than the length of the pile being handled or installed to the edge of any traveled way open to public use, the Contractor shall submit to the Engineer, as provided in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications, a detail plan of the measures that will be employed to provide for the safety of traffic and the public.

Section 49-1.05, “Driving Equipment," of the Standard Specifications is amended to read:

> Driven piles shall be installed with impact hammers that are approved by the Engineer. Impact hammers shall be steam, air, diesel hammers, or drop hammers. Impact hammers shall have sufficient energy to drive the piles at a penetration rate of not less than 1/8 inch per blow at the specified penetration.

Vibratory hammers will not be approved for installation of driven piles.

Difficult pile installation is anticipated due to the presence of soft bay mud overlying dense soils, caving soils, contaminated materials, tidal flow fluctuation, high ground water and traffic control.

As-built pile driving records as well as the Log of Test Boring for the adjacent contract, EA 04-045011, are available for viewing at Caltrans Transportation Lab, 5900 Folsom Boulevard, Sacramento, California, Telephone (916) 227-7000.

Driven piles shall be driven to obtain the specified penetration; bearing value will not be determined by the criteria in Paragraphs 3 through 7 of Section 49-1.08, "Bearing Value and Penetration," of the Standard Specifications.

Jetting or drilling to obtain the specified penetration in conformance with the provisions in Section 49-1.05, "Driving Equipment," of the Standard Specifications shall not be used for driven type piles.

Modification to the specified installation methods and specified tip elevations will not be considered.

STEEL PIPE PILING.-- Steel pipe piling shall consist of unfilled steel pipe piling, steel shells for open and closed ended cast-in-steel-shell concrete piling, permanent steel casing for cast-in-drilled hole piling, and steel pipe used for micropiling and shall conform to these special provisions.

General.-- The provisions of Section 49-5, “Steel Piles," of the Standard Specifications shall not apply to steel pipe piling.

Attention is directed to “Field Welding Quality Control” elsewhere in these special provisions.

Wherever reference is made to the following American Petroleum Institute (API) specifications in the Standard Specifications, on the project plans or in these special provisions, the year of adoption for these codes shall be as follows:

API Codes	Year of Adoption
API 2B	1990
API 5L	1995

Certified test reports shall be furnished by the pipe pile manufacturer or fabricator and shall include certification that the steel and production methods used comply with the requirements of these special provisions. Samples for testing shall be taken from the base metal, steel, coil or from the fabricated pipe. Certified mill test reports shall be in English with English units.

Each length of steel pipe piling shall be marked with the pipe producer’s identification, steel heat number, and date of production.

Welds on steel pipe pile that are performed at a manufacture or fabrication facility and that are made prior to release of the certified test reports shall be classified as “shop welds.”

After steel pipe piling has been produced at a manufacture or fabrication facility and released per the producer’s certified test reports, further steel pipe piling welding shall be classified as “field welding.”

Steel pipe piling shall not be lap spliced welded. Longitudinal, circumferential, and spiral welds, including splices, shall be complete penetration welds.

Handling devices may be attached to steel pipe piling. Attachment welds shall conform to the requirements for field welds and shall be aligned parallel to the long axis of the pile. Bolted systems shall be corrosion resistant. Prior to making attachments, the Contractor shall submit a plan to the Engineer, and no attachments shall be made until the plan is approved in writing by the Engineer. The Engineer shall have 7 calendar days to review plan. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the plan, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

All steel pipe piling ends damaged during driving shall be removed to a sound and uniform section conforming to the dimensions and tolerances specified.

Manufactured Steel Pipe.--Manufactured steel pipe is defined as pipe that is produced at a facility that on a daily basis operates a submerged arc weld, electric resistance weld or seamless pipe operation; that is in compliance with ASTM A252, ASTM A53, ASTM A135, API 5L, or AWWA C200; and that is produced in lengths equal to or greater than 30 feet long without a circumferential weld.

Manufactured steel pipe used for steel pipe piling and shall conform with the requirements of ASTM 252, Grade 3 and the following additional requirements:

1. The carbon equivalency (CE) as defined in AWS D 1.1, Section X15.1 shall not exceed 0.45.
2. The sulfur content shall not exceed 0.05%.
3. The phosphorus content shall not exceed 0.04%.
4. The outside circumference of the steel shell ends shall not vary more than plus or minus 0.375-inch from the size shown on the plans. The maximum allowable edge alignment for pipe is 0.1875 times the wall thickness or 0.063-inch, which ever is less.
5. Steel pipe pile straightness shall conform to the requirements of API 2B, Section 4.4, "Straightness."
6. Shop welds shall be made by either submerged arc weld, gas metal arc weld or electric resistance weld methods.
7. Twenty-five percent of each longitudinal, circumferential and spiral shop weld shall be non-destructively tested (NDT) by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with the requirements of AWS D1.1 or API Specification 5L. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for tension cyclically loaded nontubular connections.

Fabricated Steel Pipe.--Fabricated steel pipe is defined as that produced at a facility that on a daily basis performs a variety of steel fabrication including rolling and welding steel plate into pipe that is equal to or greater than 3/4 inch in wall thickness and that is in compliance with API 2B. API site license is not required.

Fabricated steel pipe used for steel pipe piling shall conform to API 2 and the following:

1. API site license and API monogram are not required.
2. Fabricated steel pipe piling shall conform to the physical and chemical requirements of ASTM 252, Grade 3 and the carbon, sulfur, and phosphorus requirements for manufactured steel pipe.
3. Shop welds shall be made by either the submerged arc weld or the gas metal arc weld processes.
4. Twenty-five percent of each longitudinal and circumferential shop weld shall be non-destructively tested (NDT) by either radiographic, radioscopic, real time imaging systems or ultra sonic methods that are in conformance with the requirements of AWS D1.1 or API Specification 5L. The acceptance and repair criteria shall conform to the requirements of AWS D1.1, Section 6, for tension cyclically loaded nontubular connections.

Field Welding.--Field welding of steel pipe piling shall conform to the requirements of AWS D1.1, "Field Welding Quality Control," elsewhere in these special provisions, the weld joint details shown on the plans and these following additional requirements:

1. Match marking at the manufacture or fabrication facility is recommended for piling that will be field spliced. If pipe ends have been damaged by handling or driving, the pipe edge preparation shall be performed by oxygen-acetylene flame cutting using automatically guided cutting tips. Manual flame cutting shall not be used. Prior to positioning any 2 sections of steel pipe to be spliced by field welding, including those that have been match marked at the manufacture or fabrication facility, the Contractor shall equalize the offsets of the pipe ends to be joined and match mark the pipe ends.
2. The minimum thickness of the backing ring shall be 1/4 inch. All splices in the backing ring shall be made by complete penetration welds. The gap between the backing ring and the steel pipe piling wall shall be no greater than 1/16 inch. One localized portion of the splice, that is equal to or less than a length that is 20% of the pipe outside diameter, may be offset by a distance equal to or less than 1/4 inch. This localized portion shall first be repaired by a seal weld using shielded metal arc E7016 or E7018 electrodes. The Contractor shall mark this localized portion so that it can be referenced during visual inspection and NDT.
3. The root opening tolerance may be a maximum of 1/4-inch for steel pipe with an outside diameter greater than 42 inches and with a wall thickness greater than 1-inch, when necessary to maintain the perpendicular alignment of adjoining pipe.
4. All weld filler metal shall be in accordance with AWS D1.5 for ASTM A709, Grade 50 steel.
5. For all field welding, including attaching backing ring and making repairs, the preheat and interpass temperature shall be in accordance with AWS D1.1, Section 3.5 "Minimum Preheat and Interpass Temperature Requirements," with Table 3.2, Category C; and the minimum preheat shall be 150° F, regardless of the pipe pile wall thickness or steel grade. If unforeseen events occur and welding is disrupted, the minimum interpass temperature shall be maintained until the welding is resumed.
6. Welds shall not be water quenched. Welds shall be allowed to cool unassisted.
7. Welds on steel pipe piling with wall thickness equal to and less than one inch shall be NDT as follows:

   Each field weld shall be magnetic particle tested (MT), including splices that are made onto

a portion of the steel pipe piling that has been installed and any repair made to the steel pipe. Testing shall be done at locations selected by the Engineer. The length of a splice weld that is MT shall have a cumulative length that is equal to 25% of the pipe outside circumference. The Engineer may select several locations on a given splice for MT, and MT shall be performed after the root pass as well as after the top cover pass. The top cover pass shall be ground smooth at the locations to be tested. The acceptance criteria shall conform to the requirements of AWS D1.1, Section 6, for tension cyclically loaded nontubular connections. If repairs are required in a portion of the weld, additional MT shall be performed. The additional MT shall be made on both sides of the repair for a length equal to 10% of the length of the pipe outside circumference. If repairs are required in either of the additional MT locations, the entire weld shall be removed and replaced.

8. No steel pipe piling or partial length of steel pipe piling shall be driven or installed until the field welded splices are approved by the Engineer.

Full compensation for conforming to all of the requirements of "Steel Pipe Piling" shall be considered as included in the contract prices paid for the various contract items of work involved and no additional compensation will be allowed therefor.

Driving System Submittal--Prior to installing driven piling, the Contractor shall provide a driving system submittal, including driveability analysis, in accordance with provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications All proposed driving systems (i.e., each hammer that may be brought onto the site) shall be included in the submittal.

The driving system submittal shall contain an analysis showing that the proposed driving systems will install piling to the specified tip elevation. Driving systems shall generate sufficient energy to drive the piles with stresses not more than 95 percent of the specified yield strength of the steel pile or unfilled steel shell. Submittals shall include the following:

1. Complete description of soil parameters used, including soil quake and damping coefficients, skin friction distribution, ratio of shaft resistance to the driving resistance estimated by the Contractor, any assumptions made regarding the formation of soil plugs, and any assumptions made regarding drilling through the center of open ended steel shells.
2. List of all hammer operation parameters assumed in the analysis, including fuel settings, stroke limitations, and hammer efficiency
3. Driveability studies that are based on a wave equation analysis using a computer program that has been approved by the Engineer. Driveability studies shall model the Contractor's proposed driving systems, including the hammers, capblocks, and pile cushions, as well as determine driving resistance and pile stresses for assumed site conditions. Separate analyses shall be completed at elevations above the specified tip elevations where difficult driving is anticipated.

Studies shall include plots for the estimated maximum driving resistance. Plots shall include the following:

a. Pile compressive stress versus blows per foot.
b. Pile tensile stress versus blows per foot.
c. Estimated maximum driving resistance versus blows per foot.

4. Copies of all test results from any previous pile load tests, dynamic monitoring, and all driving records used in the analyses.
5. Completed "Pile and Driving Data Form," which is shown elsewhere in these special provisions.

The driving system submittal shall be stamped and signed by an engineer who is registered as a Civil Engineer in the State of California. The Contractor shall allow the Engineer 15 working days to review a driving system submittal after a complete set has been received, as determined by the Engineer, and prior to installing piling. Should the Engineer fail to complete his review within the time allowance, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in the driving system submittal review, the delay will be considered a right of way delay as specified in Section 8-1.07, “Liquidated Damages,” in the Standard Specifications.

The Contractor shall use the driving system and installation methods described in the approved driving system submittal. Any change in hammers from those submitted and approved by the Engineer shall also meet the requirements for driving system submittals. Revised and new driving system submittals shall be approved by the Engineer prior to using corresponding driving systems on production piling. The Contractor shall allow the Engineer 15 working days to review each revised and each new driving system submittal after a complete set has been received, as determined by the Engineer.

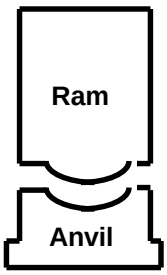
Approval of pile driving equipment shall not relieve the Contractor of his responsibility to drive piling free of damage to the specified penetration.

Full compensation for driving system submittals shall be considered as included in the contract unit price paid for drive pile and no additional compensation will be allowed therefor.

CALIFORNIA DEPARTMENT OF TRANSPORTATION
OFFICE OF TRANSPORTATION LABORATORY

PILE AND DRIVING DATA FORM

Structure Name :_____ Contract No.:_____
_____ Project:_____
Structure No.:_____ Pile Driving Contractor or Subcontractor____
Dist./Co./Rte./P.M.:_____ _____
(Pile Driven By)



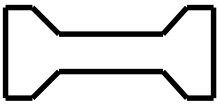
Hammer

Manufacturer:_____ Model:_____
Type:_____Serial No.:_____
Rated Energy:_____ at _____ Length of Stroke

Modifications: _____
_____
_____
_____
_____

Capblock (Hammer Cushion)

Material:_____
Thickness:_____ Area:_____
Modulus of Elasticity - E:_____ (P.S.I.)
Coefficient of Restitution - e:_____

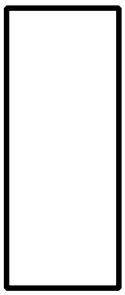


Pile Cap

[Helmet / Bonnet / Anvil Block / Drivehead] Weight:_____

Pile Cushion

Material:_____
Thickness:_____ Area: _____
Modulus of Elasticity - E:_____ (P.S.I.)
Coefficient of Restitution - e:_____



Pile

Pile Type:_____
Length (In Leads):_____
Weight/ft.:_____Taper:_____
Wall Thickness:_____
Cross Sectional Area:_____ sq.in.
Design Pile Capacity:_____ (Tons)
Description of Splice:_____
_____
Tip Treatment Description:_____
_____

DISTRIBUTION
One Copy Each To:

- ☐ Translab Geotechnical Engineering
- ☐ Translab Engineering Geology
- ☐ Resident Engineer

Note: If mandrel is used to drive the pile, attach separate manufacturer's detail sheet(s) including weight and dimensions.

Submitted By:_____ Date:_____

Phone No.:_____

OPEN ENDED CAST-IN-STEEL SHELL CONCRETE PILING;--Cast-in-steel shell concrete piling shall consist of driven open ended steel shells filled with reinforced cast-in-place concrete and shall conform to the requirements of Section 49-4, "Cast-in-Place Concrete Piles," of the Standard Specifications and these special provisions.

Concrete for filling open ended cast-in-steel shell concrete piles is designated by compressive strength and shall have a minimum 28-day compressive strength of 3500 pounds per square inch. The combined aggregate grading for the concrete shall be the 1" Max. grading.

In addition to driving, it is anticipated that drilling through the center of open ended steel shells to obtain the specified penetration may be necessary. The diameter of the drilled hole shall be less than the inside diameter of the piling. Equipment or methods used for drilling holes shall not cause quick soil conditions or cause scouring or caving of the hole. Drilling shall not be below the elevation of the bottom of the seal course.

The piles shall be installed open ended and no internal plates shall be used.

Cleaning Out Steel Shells.--The Contractor shall submit for approval by the Engineer a cleanout method for open ended cast-in-steel shell concrete piling. Care shall be taken during cleaning out of open ended steel shells to prevent disturbing the foundation material surrounding the pile. The steel shell shall be cleaned out to the elevation of the bottom of the seal course as shown on the plans. Equipment or methods used for cleaning out steel shells shall not cause quick soil conditions or cause scouring or caving around or below the piles. Open ended steel shells shall be free of any soil, rock or other material deleterious to the bond between concrete and steel prior to placing reinforcement and concrete.

Steel shells shall not be dewatered until the seal course has cured. Water level inside the steel shell shall be maintained to the same elevation as the sea level during drilling and cleaning out operations and until the seal course has cured.

The bottom of the shell shall be sealed in conformance with the provisions in Section 51-1.10, "Concrete Deposited Under Water," of the Standard Specifications. The sealed shell shall then be dewatered and cleaned in conformance with "Cleaning Out Steel Shells" elsewhere in the special provisions.

After the steel shells have been cleaned out, the pile shall be constructed expeditiously. Deteriorated foundation materials, including materials that have softened, swollen or degraded, shall be removed from the bottom of the steel shells and shall be disposed of.

Disposal of materials relating to pile installation shall conform to the requirements in “Dredging,” elsewhere in these special provisions.

Placing Reinforcement.--The reinforcement shall be placed and secured symmetrically about the axis of the pile and shall be securely blocked to clear the sides of the open ended steel shell.

Placing Concrete.--Water which has infiltrated the open ended steel shell shall be removed before placing concrete therein

The second sentence in paragraph 3 of Section 51-1.09, "Placing Concrete," of the Standard Specifications is amended to read:

> Concrete placed in steel shells shall not be permitted to fall from a height greater than 8 feet without the use of adjustable length pipes or tubes unless the flow of concrete is directed into the center of the steel shell using a hopper and not allowed to strike the reinforcement, reinforcement bracing and other objects in the steel shell.

The provisions concerning vibration in Section 51-1.09, "Placing Concrete," of the Standard Specifications shall not apply to open ended cast-in-steel shell concrete piles. Only the upper 15 feet of concrete in open ended cast-in-steel shell concrete piling shall be vibrated.

The nominal and maximum penetrations shown in the table in Section 90-6.06, "Amount of Water and Penetration," are amended to read:

> The range of nominal penetration is 2 1/2 inches to 3 1/2 inches with a maximum penetration of 4 inches. Type F or Type G chemical admixtures may be required to achieve the specified penetration. When admixtures are used in accordance with the requirements in Section 90-4, "Admixtures," the penetration of the concrete will be measured after the admixture is added.

Full compensation for drilling through the center of open ended steel shells to obtain the specified penetration and for disposing of this material shall be considered as included in the contract unit price paid for drive pile and no additional compensation will be allowed therefor.

MEASUREMENT AND PAYMENT.--Measurement and payment for the various types and classes of piles shall conform to the provisions in Sections 49-6.01, "Measurement," and 49-6.02, "Payment," of the Standard Specifications and these special provisions.

The eighth paragraph in Section 49-6.02, "Payment," of the Standard Specifications is amended to include:

> Load test piles and adjacent anchor piles that become a part of the completed structure, or are shown on the plans, or are specified, will be paid for at the contract prices for the type or class of piling shown in the Engineer’s Estimate.
>
> Full compensation for furnishing and placing additional testing reinforcement, load test anchorages,

and for cutting off test piles as specified shall be considered as included in the contract price paid for piling of the type or class shown in the Engineer's Estimate, and no additional compensation will be allowed.

No extension of time will be made for additional foundation investigation, installation and testing of indicator piling, cutting off piling and restoring the foundation investigation and indicator pile sites, and review of request by the Engineer.

Any driven piling which is substituted, at the Contractor's option, for the piling shown on the plans will be measured and paid for as furnish piling and drive pile of the type or class shown in the Engineer's Estimate. Any additional length needed to develop the required bearing shall be at the Contractor's expense. Full compensation for furnishing and placing the pile anchors, splicing piles, additional removal of materials inside cast-in-steel shell piling, additional concrete inside cast-in-steel shell piling, or any other expense resulting from said substitution shall be considered as included in the contract price paid per linear foot for furnish piling and contract unit price paid for drive pile of the class shown the Engineer's Estimate and no additional compensation will be allowed therefor.

Cast-in-place concrete piling will be paid for as provided in Section 49-6.02, "Payment," of the Standard Specifications except that, when the diameter of cast-in-place concrete piling is shown on the plans as 24-inch or larger, reinforcement in such piling will be paid for as bar reinforcing steel (bridge).

Full compensation for any changes in the cost of constructing cast-in-drilled-hole concrete piling with increased diameters as provided in these special provisions, including the increased quantity of portland cement concrete and any changes in the drilling cost, shall be considered as included in the contract price paid per linear foot for the size of cast-in-drilled-hole concrete piling shown on the plans and no separate payment will be made therefor.

Full compensation for additional cost of splicing precast prestressed piling, including furnishing of dowels, epoxy or epoxy mortar and miscellaneous metal, shall be considered as included in the contract price paid per linear foot for furnish concrete piling and no additional compensation will be allowed therefor.

Full compensation for slurry, depositing concrete under slurry, test batches, inspection pipes, filling inspection holes and pipes with grout, drilling oversize cast-in-drilled-hole concrete piling, filling cave-ins and oversize piles with concrete, and redrilling through concrete shall be considered as included in the contract prices paid per linear foot for cast-in-drilled-hole concrete piling of the sizes listed in the Engineer's Estimate and no additional compensation will be allowed therefor.

Full compensation for cleaning out the open ended steel shells prior to installing reinforcement and filling with concrete, for disposing of all materials inside the pile, and for placing seal course concrete and dewatering the open ended steel shells, as shown on the plans, and as specified in these special provisions, and as directed by the Engineer shall be considered as included in the contract unit price paid for drive pile and no additional compensation will be allowed therefor.

10-1.20 CONCRETE STRUCTURES

Portland cement concrete structures shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

GENERAL.--

The second paragraph in Section 51-1.22, "Measurement," of the Standards Specifications is amended to read:

The estimated quantity of concrete for minor structures designated as final pay in the Engineer's Estimate will not be revised as specified in Section 9-1.015, "Final Pay Items," of the Standard Specifications, when the constructed height of said minor structure, including revisions by the Engineer, is within 0.5-foot of the vertical dimension shown on the plans.

When a roughened concrete surface is shown on the plans, the existing concrete surface shall be roughened to a full amplitude of approximately 1/4-inch by abrasive blasting or mechanical equipment.

CURING.--The formed surfaces of the caps , as shown on the plans, shall be cured by the forms-in-place method

MEASUREMENT AND PAYMENT.-- Measurement and payment for concrete in structures shall conform to the provisions in Sections 51-1.22, "Measurement," and 51-1.23, "Payment," of the Standard Specifications and these special provisions.

Full compensation for roughening existing concrete surfaces to a full amplitude of approximately 1/4-inch, where shown on the plans, shall be considered as included in the contract price paid per cubic yard for structural concrete, bridge and no separate payment will be made therefor.

10-1.21 DRILL AND BOND DOWEL (EPOXY CARTRIDGE)

Drilling and bonding high strength rods with epoxy cartridge systems shall conform to the details shown on the plans and the requirements in these special provisions.

Where shown on the plans, high strength rods shall conform to the provisions in Section 75-1.03, “Miscellaneous Bridge Metal,” of the Standard Specifications, except that galvanizing will not be required. The high strength rods shall be installed in accordance with these requirements for dowels.

The epoxy cartridge system shall consist of (1) a bonding material that is a two-component epoxy contained in a cartridge having two separate chambers and (2) an

applicator that is a special dispensing gun having a replaceable static mixing nozzle. The epoxy cartridge system used shall be appropriate for the service temperature and ambient concrete temperature at the time of installation.

The Contractor may select an epoxy cartridge system which has been evaluated and found acceptable for use on this project by the Transportation Laboratory. For a listing of acceptable epoxy cartridge systems for this project, contact the Transportation Laboratory, telephone: (916) 227-7000.

If the Contractor elects to use an epoxy cartridge system other than those accepted by the Transportation Laboratory, the determination as to the quality and suitability of the alternative epoxy cartridge system will be made in the same manner as provided for in Section 6-1.05, "Trade Names and Alternatives," of the Standard Specifications.

Each epoxy cartridge shall be clearly and permanently marked with the manufacturer's name, model number of epoxy cartridge system, manufacturing date, and lot number. Each carton of epoxy cartridges shall contain the manufacturer's recommended installation procedures, minimum cure time, and such warning or precautions concerning the contents as may be required by State or Federal Laws and Regulations.

Each shipment of the epoxy cartridge system, regardless of which epoxy product is furnished, shall be accompanied by a Certificate of Compliance as provided in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications. The certificate shall state that the material complies in all respects to the specifications and data submitted in obtaining acceptance.

The holes shall be drilled by methods that will not shatter or damage the concrete adjacent to the holes. If reinforcement is encountered during drilling, before the correct depth is attained, the Engineer shall be notified. Unless the Engineer approves coring through the reinforcement, the hole will be rejected and a new hole, in which reinforcement is not encountered, shall be drilled adjacent to the rejected hole to the correct depth.

Unless otherwise specified or shown on the plans, the hole depth and the hole diameter shall be as recommended by the manufacturer. The drilled holes shall be clean and dry at the time of placing the bonding material and the steel dowels.

After bonding, dowels shall be supported as necessary to prevent movement during curing and shall remain undisturbed until the epoxy has cured the minimum time specified by the manufacturer. Dowels that are improperly bonded, as determined by the Engineer, will be rejected. New holes shall be drilled, and new dowels placed and securely bonded to the concrete at the Contractor's expense.

Unless otherwise provided, high strength rods to be bonded into drilled holes will be paid for as miscellaneous metal (bridge).

Drill and bond dowel (epoxy cartridge) will be measured and paid for as drill and bond dowel.

10-1.22 DRILL AND BOND DOWELS

Drilling and bonding dowels shall conform to the details shown on the plans, the provisions in Section 83-2.02D(1), "General," of the Standard Specifications and these special provisions.

Dowels shall conform to the provisions for bar reinforcement in "Reinforcement" elsewhere in these special provisions.

If reinforcement is encountered during drilling, before specified depth is attained, the Engineer shall be notified. Unless the Engineer approves coring through the reinforcement, the hole will be rejected and a new hole, in which reinforcement is not encountered, shall be drilled adjacent to the rejected hole to the depth shown on the plans.

Unless otherwise provided, dowels to be bonded into drilled holes will be paid for as bar reinforcing steel (epoxy coated)(bridge).

Unless otherwise provided, drilling and bonding dowels will be measured and paid for by the linear foot determined by the number and the required depth of holes as shown on the plans, or as ordered by the Engineer.

The contract price paid per linear foot for drill and bond dowel shall include full compensation for furnishing all labor, materials (except reinforcing steel dowels), tools, equipment, and incidentals, and for doing all the work involved in drilling the holes, including coring through reinforcement when approved by the Engineer, and bonding the dowels, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

10-1.23 CORE CONCRETE (1", 1 1/2",3")

Coring concrete shall consist of coring 1", 1 1/2" and 3" diameter holes through reinforced concrete bridge members at the new hinge restrainer near bent 285 and at the new seat extenders, as shown on the plans and in conformance with the requirements in these special provisions.

The holes shall be cored by methods that will not shatter or damage the concrete adjacent to the holes.

Coring at the yoke connections shall not damage existing rebar. Damaged rebar due to coring shall be repaired and the hole filled as directed by the Engineer at the Contractor's expense.

Water for core drilling operations shall be from the local domestic water supply or shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO_4, nor shall it contain any impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.

Water from core drilling operations shall not be permitted to fall into the waterway or to flow into gutters or other drainage facilities.

Coring concrete will be measured and paid for by the linear foot as core concrete with sizes as listed in the

Engineer's Estimate. The cored concrete will be measured along the centerline of the hole without deduction for expansion joints.

The contract price paid per linear foot for core concrete with sizes as listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in coring the holes, including control of water from core drilling, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

10-1.24 CORE CONCRETE AND PRESSURE GROUT

Core concrete and pressure grout dowels and high strength bolts shall consist of coring holes through concrete, placing dowels or high strength bolts, and filling the holes with pressurized grout, as shown on the plans and in conformance with the requirements in these special provisions.

Reinforcing dowels to be placed in the cored holes shall conform to the provisions for bar reinforcement in "Reinforcement" and “Epoxy Coated Reinforcement” elsewhere in these special provisions.

Reinforcing dowels to be pressure grouted in cored holes will be paid for as bar reinforcing steel (epoxy coated) (bridge).

High strength bolts to be placed in the cored holes shall conform to the provisions for high strength threaded rods in "Miscellaneous Metal (Bridge)" elsewhere in these special provisions.

High strength bolts to be pressure grouted in cored holes will be paid for as miscellaneous metal (bridge).

The holes shall be cored by methods that will not shatter or damage the concrete adjacent to the holes.

Water for core drilling operations shall be from the local domestic water supply or shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO_4, nor shall it contain any impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.

Concrete areas and steel surfaces to be in contact with the grout shall be cleaned of all loose or foreign material that would in any way prevent bonding, and concrete holes shall be flushed with water and allowed to dry to a surface dry condition immediately prior to grouting.

Grout shall conform to the requirements of either ASTM Designation: C 1107, Grade B, or ASTM Designation: C 845, Type K, and shall provide a minimum compressive strength of 5000 pounds per square inch at 28 days when tested by California Test 551. The grout shall be mixed in accordance with the manufacturer’s recommendations. Water shall comply with the provisions for water for prestressed concrete work as specified in Section 90-2.03, "Water," of the Standard Specifications.

Admixtures shall not contain more than 500 parts per million of chlorides as Cl, when tested by California Test 422, and shall not contain more than 2500 parts per million of sulfates as SO_4, when tested by California Test 417.

After dowel placement, the ends of the cored hole containing the dowel shall be sealed. A vent tube shall be placed at one end and one injection feed tube at the other end. The vent tube and injection feed tube shall be placed in the same end for cored holes that have only one end. The tubes shall be placed in the hole in a manner which will allow the air to vent and the hole to be completely filled with grout. Sufficient pressure shall be achieved to ensure that the hole is free of voids. Grout shall be pumped into the holes and continually wasted until no visible slugs or other visible evidence of water or air are ejected.

Grout or water shall not be permitted to flow into any waterway, on to public traffic, across shoulders or lanes occupied by public traffic, or into gutters or other drainage facilities.

Core concrete and pressure grout dowels and high strength bolts will be measured and paid for by the linear foot. The cored concrete will be measured along the centerline of the hole.

The contract price paid per linear foot for core concrete and pressure grout with sizes as listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, except dowels, tools, equipment, and incidentals, and for doing all work involved in coring the holes, and pressure grouting the holes, including control of water from core drilling, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

10-1.25 POLYESTER CONCRETE OVERLAY

This work shall consist of constructing a polyester concrete overlay in accordance with the details shown on the plans and these special provisions.

Before starting deck overlay work on the project, the Contractor shall submit, for approval by the Engineer, a program for public safety associated with use of methacrylate resin and polyester concrete during the construction of the project. Such program shall identify materials, equipment and methods to be used. The Contractor shall not perform any deck overlay work on the project, other than that specifically authorized in writing by the Engineer, until such program has been approved.

If the measures being taken by the Contractor are inadequate to provide for public safety associated with use of methacrylate resin and polyester concrete, the Engineer will direct the Contractor to revise his operations and his public safety program. Such directions will be in writing and will specify the items of work for which the Contractor's program for public safety associated with use of methacrylate resin and polyester concrete are inadequate. No further work shall be performed on said items until the public safety measures are adequate and, if required, a revised program for public safety associated with use of methacrylate resin and polyester concrete has been approved.

The Engineer will notify the Contractor of the approval or rejection of any submitted or revised program for public safety associated with use of methacrylate resin and polyester concrete in not more than 10 working days.

The State will not be liable to the Contractor for failure to approve all or any portion of an originally submitted or revised program for public safety associated with use of methacrylate resin and polyester concrete, nor for any delays to the work due to the Contractor's failure to submit an acceptable program for public safety associated with use of methacrylate resin and polyester concrete.

Surface preparation shall be as specified in Sections, "Prepare Concrete Bridge Deck Surface," and "Remove Concrete Deck Surface," elsewhere in these special provisions.

A prime coat shall be applied to the surfaces to be covered with polyester concrete.

When magnesium phosphate concrete is placed prior to the deck overlay, the magnesium phosphate concrete shall be placed at least 72 hours prior to placing the prime coat.

Polyester concrete shall consist of polyester resin binder and dry aggregate. The resin shall be an unsaturated isophthalic polyester-styrene co-polymer conforming to the following:

POLYESTER RESIN BINDER		
PROPERTY	REQUIREMENT	TEST METHOD
* Viscosity	75 to 200 cps (RVT, No. 1 Spindle, 20 RPM at 77° F.)	ASTM D 2393
* Specific Gravity	1.05 to 1.10 at 77° F.	ASTM D 1475
Elongation	35 percent minimum Type I at 0.45 in./min. Thickness=0.25±0.03in.	ASTM D 638
	Sample Conditioning: 18/25/50 + 5/70	ASTM D 618
Tensile Strength	2,500 psi minimum Type I at 0.45 in./min. Thickness=0.25±0.03in.	ASTM D 638
	Sample Conditioning: 18/25/50 + 5/70	ASTM D 618
* Styrene Content	40 percent to 50 percent (by weight)	ASTM D 2369
Silane Coupler	1.0 percent, minimum (by weight of polyester styrene resin)	
PCC Saturated Surface-Dry Bond Strength	500 psi, minimum at 24 hours and 70±2° F.	California Test 551
* Static Volatile Emission	60 gram per square meter, loss, maximum	South Coast Air Quality Management District, Standard Method
* Test shall be performed prior to adding initiator.		

The silane coupler shall be an organosilane ester, gammamethacryloxypropyltrimethoxysilane. The promoter shall be compatible with suitable methyl ethyl ketone peroxide (MEKP) and cumene hydroperoxide (CHP) initiators.

Aggregate for polyester concrete shall conform to the requirements of Section 90-2.02, "Aggregates," of the Standard Specifications and either of the following combined aggregate gradings:

COMBINED AGGREGATE		
Sieve Size	3/8" Max. Percent Passing	No. 4 Sieve Max. Percent Passing
1/2"	100	100
3/8"	83 - 100	100
No. 4	65 - 82	62 - 85
No. 8	45 - 64	45 - 67
No. 16	27 - 48	29 - 50
No. 30	12 - 30	16 - 36
No. 50	6 - 17	5 - 20
No. 100	0 - 7	0 - 7
No. 200	0 - 3	0 - 3

Aggregate retained on the No. 8 sieve shall have a maximum of 45 percent crushed particles as tested in accordance with California Test 205. Fine aggregate shall consist of natural sand only.

Aggregate absorption shall not exceed one percent as determined by California Test 206 and 207.

At the time of mixing with the resin, the moisture content of the aggregate, as determined by California Test 226, shall not exceed one half of the aggregate absorption.

The prepared surface shall receive a wax-free, low odor, high molecular weight methacrylate prime coat. The prime coat shall be a resin, and prior to adding initiator the resin shall have a maximum volatile content of 30 percent, when tested in accordance with ASTM Designation: D 2369, and conforming to the following:

High Molecular Weight Methacrylate (HMWM) Resin		
PROPERTY	REQUIREMENT	TEST METHOD
* Viscosity	25 cps, maximum, (Brookfield RVT with UL adaptor, 50 RPM at 77° F.)	ASTM D 2393
* Specific Gravity	0.90, minimum, at 77° F.	ASTM D 1475
* Flash Point	180° F., minimum	ASTM D 3278
* Vapor Pressure	1.0 mm Hg, maximum, at 77° F.	ASTM D 323
Tack-free time	400 minutes, maximum at 77° F.	California Test 551
PCC Saturated Surface-Dry Bond Strength	500 psi, minimum at 24 hours and 70±2° F.	California Test 551
* Test shall be performed prior to adding initiator.		

The promoter/initiator system for the methacrylate resin shall consist of a metal drier and peroxide. If supplied separately from the resin, at no time shall the metal drier be mixed with the peroxide directly. The containers shall not be stored in a manner that will allow leakage or spillage from one material to contact the containers or material of the other.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications and Material Safety Data Sheet shall be furnished prior to use for each shipment of polyester resin binder and high molecular weight methacrylate resin.

Expansion joints shall be adequately isolated prior to overlaying or may be sawed within four hours after overlay placement, as approved by the Engineer. The exact time of sawing will be determined by the Engineer.

Prior to applying the prime coat, the area to receive the prime coat shall be dry and blown clean by compressed air to remove accumulated dust and any other loose material. The surface temperature shall at least 50° F. when the prime coat is applied.

The prime coat shall be uniformly applied to completely cover the surface to receive the polyester concrete. The rate of spread shall be approximately one gallon per 100 square feet of surface.

The prime coat shall be allowed to cure a minimum of 15 minutes before placing polyester concrete. If the primed surface becomes contaminated, the contaminated area shall be cleaned by abrasive blasting and reprimed at the Contractor's expense.

Polyester concrete shall be placed within 120 minutes after the prime coat has been applied.

Polyester concrete shall be mixed in mechanically operated mixers. Mixer size shall be limited to a nine cubic foot capacity, unless approved by the Engineer. The polyester resin binder in the concrete shall be approximately 12 percent by weight of the dry aggregate; the exact percentage will be determined by the Engineer.

A continuous mixer, employing an auger screw/chute device, may be approved by the Engineer upon demonstrating its ability to produce a satisfactory product.

The amount of initiator used in polyester concrete shall be sufficient to produce initial set time between 30 and 120 minutes during placement. The initial set time will be determined by using an initial-setting time Gillmore needle in accordance with the requirements of ASTM Designation: C 266. Accelerators or inhibitors may be required to achieve proper set times and shall be used as recommended by the resin supplier.

The resin binder shall be initiated and thoroughly blended just prior to mixing with aggregate. The polyester concrete shall be mixed a minimum of 2 minutes prior to placing.

Polyester concrete shall be placed prior to gelling and within 15 minutes following addition of initiator, whichever occurs first. Polyester concrete that is not placed within this time shall be discarded.

The surface temperature of the area to receive polyester concrete shall be the same as specified above for the prime coat. The finishing equipment used shall strike off the polyester concrete to the established grade and cross section. Finishing equipment shall be fitted with vibrators or other means of consolidating the polyester concrete to the required compaction.

The polyester concrete shall be consolidated to a relative compaction of not less than 97 percent in accordance with tentative California Test 552.

The finished surface of the polyester concrete overlay shall conform to the requirements of Section 51-1.17. "Finishing Bridge Decks," of the Standard Specifications and these special provisions.

Polyester concrete surfaces shall receive an abrasive sand finish. The sand shall be No. 8/20 commercial quality blast sand conforming to the dryness requirements for polyester concrete aggregate as specified in these special provisions.

The sand finish shall be applied by mechanical means immediately after overlay strike-off and before gelling occurs to provide a minimum uniform coverage of 0.8 pounds per square yard.

The surface texture of polyester concrete surfaces shall be uniform and shall have a coefficient of friction of not less than 0.35 as measured by California Test 342. Any portions of surfaces that do not meet the above provision shall be ground or grooved parallel to the centerline in accordance with the requirements of Section 42, "Groove and Grind Pavement," of the Standard Specifications until the above tolerance is met.

Traffic and equipment shall not be permitted on the overlay for a minimum of 4 hours following final finishing. Overlays shall be protected from moisture for not less than 4 hours after finishing.

Prior to constructing the overlay, one or more trial overlays shall be placed on a previously constructed concrete base to determine the initial set time and to demonstrate the effectiveness of the mixing, placing, and finishing equipment proposed. Each trial overlay shall be 12 feet wide, at least 6 feet long, and the same thickness as the overlay to be constructed. Conditions during the construction of the overlay and equipment used shall be similar to those expected and to be used for the construction of the polyester concrete overlay.

All materials used in the trial overlays, including the concrete base shall become the property of the Contractor and shall be removed and disposed of as provided in Section 7-1.13, "Disposal of Material Outside the Right of Way," of the Standard Specifications.

Furnish polyester concrete overlay will be measured by the cubic foot. The volume to be paid for will be determined from calculations based on the quantity of resin binder used and the yield of the specified mix design. The Contractor shall furnish suitable measuring devices to assure correct proportioning of materials and accurate measurements for calculating pay quantities. The pay quantity shall be the calculated quantity of polyester concrete overlay used in the work, exclusive of material used in trial overlays, and any wasted or unused material.

Place polyester concrete overlay will be measured by the square foot. The area to be paid for will be based on the dimensions as shown on the plans.

The contract price paid per cubic foot for furnish polyester concrete overlay shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in furnishing polyester concrete, including polyester resin binder, promoter/initiator and aggregate, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per square foot for place polyester concrete overlay shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in constructing the polyester concrete overlay, complete in place, including application of prime coat and furnishing, constructing and disposing of trial overlays and base, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for compliance with the requirements for a program for public safety associated with use of methacrylate resin and polyester concrete shall be considered as included in the contract prices paid for the items of work involving polyester concrete overlay and no additional compensation will be allowed therefor.

10-1.26 SEALING JOINTS

Joints in concrete bridge decks shall be sealed in conformance with the details shown on the plans, the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

When ordered by the Engineer, a joint seal larger than called for by the Movement Rating shown on the plans shall be furnished and installed. Payment to the Contractor for furnishing the larger seal and for saw cutting the increment of additional depth of groove required will be determined as provided in Section 4-1.03, "Changes," of the Standard Specifications.

10-1.27 REINFORCEMENT

Reinforcement shall conform to the provisions in Section 52, "Reinforcement," of the Standard Specifications and these special provisions.

Attention is directed to "Field Welding Quality Control" elsewhere in these special provisions.

The first paragraph of Section 52-1.02A, "Bar Reinforcement," of the Standard Specifications is amended as follows:

> Reinforcing bars shall be low-alloy steel deformed bars conforming to the specifications of ASTM Designation: A 706, except that deformed or plain billet-steel bars conforming to ASTM Designation: A 615, Grade 40 or 60, may be used as reinforcement in the following:
>
> 1. Slope and channel paving;
> 2. Minor structures;
> 3. Sign and signal foundations (pile and spread footing types);
> 4. Roadside rest facilities; and

5. Concrete barrier Type 50 series and temporary railing.

Section 52-1.02D, "Reinforcing Wires and Plain Bars," of the Standard Specifications is amended as follows:

52-1.02D Reinforcing Wire.—Wire used as reinforcement in structures and concrete piles, as shown on the plans, shall be cold drawn steel wire conforming to the specifications of ASTM Designation: A 82.

The last paragraph of Section 52-1.07, "Placing," of the Standard Specifications is amended as follows:

Whenever a portion of an assemblage of bar reinforcing steel that is not encased in concrete exceeds 20 feet in height, the Contractor shall submit to the Engineer for approval, in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," working drawings and design calculations for the temporary support system to be used. The working drawings and design calculations shall be signed by an engineer who is registered as a Civil Engineer in the State of California. The temporary support system shall be designed to resist all expected loads and shall be adequate to prevent collapse or overturning of the assemblage. If the installation of forms or other work requires revisions to or temporary release of any portion of the temporary support system, the working drawings shall show the support system to be used during each phase of construction. The minimum horizontal wind load to be applied to the bar reinforcing steel assemblage, or to a combined assemblage of reinforcing steel and forms, shall be not less than 20 pounds per square foot on the gross projected area of the assemblage.

The sixth paragraph of Section 52-1.08, "Splicing," of the Standard Specifications is amended to read:

Except when otherwise specified, mechanical lap splicing shall conform to the details shown on the plans, the requirements for mechanical butt splices as specified in this Section 52-1.08, and Sections 52-1.08C, "Mechanical Butt Splices," 52-1.08D, "Qualification of Welding and Mechanical Splicing," and 52-1.08E, "Job Control Tests," and the following:

The mechanical lap splice shall be a unit consisting of a sleeve, in which the reinforcing bars are positioned, and a wedge driven through holes in the sleeve and between the reinforcing bars. The mechanical lap splice shall only be used for splicing non-epoxy-coated deformed reinforcing bars Nos. 4, 5 and 6. One mechanical lap splice unit per splice shall be used.

The eighth and ninth paragraphs of Section 52-1.08, "Splicing," of the Standard Specifications are amended to read:

Unless otherwise shown on the plans or approved by the Engineer, splices in adjacent reinforcing bars at any particular section shall be staggered. The minimum distance between staggered lap splices or mechanical lap splices shall be the same length required for a lapped splice in the largest bar. The minimum distance between staggered butt splices shall be 2 feet. All distances shall be measured between the midpoints of the splices along a line which is centered between the axes of the adjacent bars.

Completed butt splices shall develop a minimum tensile strength, based on the nominal bar area, of 63,000 psi for ASTM Designation: A 615 Grade 40 bars, and of 80,000 psi for ASTM Designation: A 615 Grade 60 and ASTM Designation: A 706 bars. If butt splices are made between two bars of dissimilar strengths, the minimum required tensile strength for the splice shall be that required for the weaker bar.

The second sentence of the eleventh paragraph of Section 52-1.08, "Splicing," of the Standard Specifications is amended to read:

Job control tests shall be made on sample splices representing each lot of mechanical butt splices as provided in Section 52-1.08E, "Job Control Tests."

Section 52-1.08B, "Butt Welded Splices," of the Standard Specifications is replaced with the following:

52-1.08B Butt Welded Splices.— All butt welded splices in reinforcing bars shall be complete joint penetration butt welds conforming to the requirements in AWS D1.4, and the requirements of these specifications and the special provisions. At the option of the Contractor, shop produced resistance butt welds may be used.

Only the joint details and dimensions as shown in Figure 3.2, "Direct Butt Joints," of AWS D 1.4-92, shall be used for making complete joint penetration butt welds of bar reinforcement. Split pipe backing shall not be used.

Material used as backing for complete joint penetration butt welds of bar reinforcement shall be a flat plate conforming to the requirements of ASTM Designation: A 709, Grade 36. The flat plate shall be 0.25-inch thick with a width, as measured perpendicular to the axis of the bar, equal to the nominal diameter of the bar, and a length which does not exceed twice the nominal diameter of the bar. The flat plate backing shall be fitted tightly to the bar with the root of the weld centered on the plate. Any bar deformation or obstruction preventing a tight fit

shall be ground smooth and flush with the adjacent surface. Tack welds used to fit backing plates shall be within the weld root area so that they are completely consumed by the finished weld. Backing plates shall not be removed.

Butt welds shall be made with multiple weld passes using a stringer bead without an appreciable weaving motion. The maximum stringer bead width shall be 2.5 times the diameter of the electrode and slagging shall be performed between each weld pass. Weld reinforcement shall not exceed 1/8-inch in convexity.

Before any electrodes or flux-electrode combinations are used, the Contractor, at the Contractor's expense, shall furnish certified copies of test reports for all the pertinent tests specified in AWS A5.1, AWS A5.5, AWS A5.18 or AWS A5.20, whichever is applicable, made on electrodes or flux-electrode combinations of the same class, brand and nearest specified size as the electrodes to be used. The tests may have been made for process qualification or quality control, and shall have been made within one year prior to manufacture of the electrodes and fluxes to be used. The report shall include the manufacturer's certification that the process and material requirements were the same for manufacturing the tested electrodes and the electrodes to be used. The forms and certificates shall be as directed by the Engineer.

Electrodes for manual shielded metal arc welding of ASTM Designation: A 615, Grade 60 bars shall conform to the requirements of AWS A5.5 for E9018-M or E10018-M electrodes.

Electrodes for manual shielded metal arc welding of A 706 bars shall conform to the requirements of AWS A5.5 for E8016-C3 or E8018-C3 electrodes.

Solid and composite electrodes for semiautomatic gas metal-arc and flux-cored arc welding of Grade 40 reinforcing bars shall conform to the requirements of AWS A5.18 for ER70S-2, ER70S-3, ER70S-6 or ER70S-7 electrodes; or AWS A5.20 for E70T-1, E70T-5, E70T-6 or E70T-8 electrodes.

Electrodes for semiautomatic welding of ASTM Designation: A 615, Grade 60 and ASTM Designation: A 706 bars shall produce a weld metal deposit with properties conforming to the requirements of Section 5.3.4 of AWS D1.1-96 for E90S and E90T electrodes.

Reinforcing bars shall be preheated for a distance of not less than 6 inches on each side of the joint prior to welding.

For all welding of ASTM Designation: A 615, Grade 40 or Grade 60 bars, the requirements of Table 5.2, "Minimum Preheat and Interpass Temperatures," of AWS D1.4-92 are superseded by the following:

> The minimum preheat and interpass temperatures shall be 400° F. for Grade 40 bars and 600° F. for Grade 60 bars. Immediately after completing the welding, at least 6 inches of the bar on each side of the splice shall be covered by an insulated wrapping to control the rate of cooling. The insulated wrapping shall remain in place until the bar has cooled below 200° F.
>
> When welding different grades of reinforcing bars, the electrode shall conform to Grade 40 bar requirements and the preheat shall conform to the Grade 60 bar requirements.
>
> In the event that any of the specified preheat, interpass and post weld cooling temperatures are not met, all weld and heat affected zone metal shall be removed and the splice rewelded.
>
> All welding shall be protected from air currents, drafts, and precipitation to prevent loss of heat or loss of arc shielding. The method of protecting the welding area from loss of heat or loss of arc shielding shall be subject to approval by the Engineer.
>
> Reinforcing bars shall not be direct butt spliced by thermite welding.

The first paragraph of Section 52-1.08C, "Mechanical Butt Splices," of the Standard Specifications is amended to read:

> Mechanical butt splices shall be the sleeve-filler metal type, the sleeve-threaded type, the sleeve-swaged type, the sleeve-filler grout type, the sleeve-lockshear bolt type, the two-part sleeve-forged bar type, or the two-part sleeve-friction bar type, at the option of the Contractor.

The following is added after the third paragraph of Section 52-1.08C, "Mechanical Butt Splices," of the Standard Specifications:

> Slip requirements shall not apply to mechanical lap splices.

The following is added after Section 52-1.08C(3), "Sleeve-Swaged Mechanical Butt Splices," of the Standard Specifications:

> **52-1.08C(4) Sleeve-Filler Grout Mechanical Butt Splices.—**The sleeve-filler grout type of mechanical butt splices shall consist of a steel splice sleeve that fits closely over the reinforcing bars with a non-shrink grout filler in the annular space between the reinforcing bars and the sleeve and between the ends of the reinforcing bars.
>
> No vibration or movement of the reinforcing steel or sleeve at the splice shall be allowed while the splice is developing sufficient strength to support the reinforcing bars. The Contractor shall submit complete details of the bracing and clamping system to eliminate all vibration or movement at the splice during setup of the filler in accordance with the

provisions in Section 5-1.02, "Plans and Working Drawings."

52-1.08C(5) Sleeve-Lockshear Bolt Mechanical Butt Splices.—The sleeve-lockshear bolt type of mechanical butt splices shall consist of a seamless steel sleeve, 2 serrated steel strips welded to the inside of the sleeve, center hole with centering pin, and bolts that are tightened until the bolt heads shear off and the bolt ends are embedded in the reinforcing bars.

52-1.08C(6) Two-Part Sleeve-Forged Bar Mechanical Butt Splices.— The two-part sleeve-forged bar type of mechanical butt splices shall consist of a shop machined two-part threaded steel sleeve that interlocks two hot-forged reinforcing bars ends. The forged bar ends may be either shop produced or field produced.

52-1.08C(7) Two-Part Sleeve-Friction Bar Mechanical Butt Splices.— The two-part sleeve-friction bar type of mechanical butt splices shall consist of a shop machined two-part threaded steel sleeve whose ends are friction welded, in the shop, to the reinforcing bars ends.

The third paragraph of Section 52-1.08D, "Qualification of Welding and Mechanical Splicing," of the Standard Specifications is replaced with the following:

Each operator qualification test for mechanical splices shall consist of 2 sample splices. Each mechanical splice procedure test shall consist of 2 sample splices.

For sleeve-filler, sleeve-threaded, sleeve-lockshear bolt and two-part sleeve friction bar mechanical butt splices, all sample splices shall be made on the largest reinforcing bar size to be spliced by the procedure or operator being tested except that No. 14 bars may be substituted for No. 18 bars.

For sleeve-swaged and two-part sleeve-forged mechanical butt splices, and mechanical lap splices, all sample splices shall be made on the largest reinforcing bar size of each deformation pattern to be spliced by the procedure or operator being tested. When joining new reinforcing bars to existing reinforcement, the qualification test sample bars shall be made with the deformation pattern of the new reinforcement to be joined.

Section 52-1.08E, "Job Control Tests," of the Standard Specifications is replaced with the following:

52-1.08E Job Control Tests.— When mechanical butt splices, shop produced complete joint penetration butt welded splices, or shop produced resistance butt welded splices are used, the Contractor shall furnish job control tests from a local qualified lab. A job control test shall consist of the fabrication, under conditions used to produce the splice, and the physical testing of 3 sample splices for each lot of splices.

A lot of mechanical butt splices is defined as 150, or fraction thereof, of the same type of mechanical butt splices used for each combination of bar size and bar deformation pattern that is used in the work.

A lot of shop produced complete joint penetration butt welded splices, or shop produced resistance butt welded splices, is defined as 150, or fraction thereof, of the same type of welds used for each combination of bar size and bar deformation pattern that is used in the work.

When joining new reinforcing bars to existing reinforcement, the job control test shall be made with the deformation pattern of the new reinforcement to be joined.

A sample splice shall consist of a splice made at the job site to connect two 30-inch, or longer, bars using the same splice materials, position, location, and equipment, and following the same procedures as are being used to make splices in the work. Shorter sample splice bars may be used if approved by the Engineer.

Sample splices shall be made and tested in the presence of the Engineer or the Engineer’s authorized representative.

Sample splices shall be suitably identified with weatherproof markings prior to shipment to the testing laboratory.

For sleeve-threaded mechanical butt splices, the reinforcing bars to be used for job control tests shall be fabricated on a random basis during the cutting of threads on the reinforcing bars of each lot and shipped to the job site with the material they represent.

For shop produced complete joint penetration butt welds, shop produced resistance butt welded splices and all types of mechanical butt splices, except the sleeve-threaded type, the Engineer will designate when samples for job control tests are to be fabricated, and will determine the limits of the lot represented by each job control test.

For shop produced resistance butt welds, all sample splices shall have the flash ground to sound metal. The welds will be visually inspected.

Should the average of the results of tests made on the 3 sample splices or should more than one sample splice in any job control test fail to meet the requirements for splices, all splices represented by that test will be rejected in accordance with the provisions in Section 6-1.04, “Defective Materials,” of the Standard Specifications. This rejection shall prevail unless the Contractor, at the Contractor's expense, obtains and submits evidence, of a type acceptable to the Engineer, that the strength and quality of the splices in the work are acceptable.

Section 52-1.08F, "Nondestructive Splice Tests" of the Standard Specifications is replaced with the following:

52-1.08F Nondestructive Splice Tests.—All required radiographic examinations of complete joint penetration butt welded splices shall be performed by the Contractor in accordance with the requirements of AWS D 1.4 and these specifications.

Prior to radiographic examination, welds shall meet the requirements of Section 4.4, "Quality of Welds," of AWS D1.4-92.

Radiographic examinations shall be performed on 25 percent of all complete joint penetration butt welded splices from a production lot. The size of a production lot will be a maximum of 100 splices. The Engineer will select the splices which will compose the production lot and also the splices within each production lot to be radiographically examined.

Should more than 12 percent of the splices which have been radiographically examined in any production lot be defective, an additional 25 percent of the splices, selected by the Engineer from the same production lot, shall be radiographically examined. Should more than 12 percent of the cumulative total of splices tested from the same production lot be defective, all remaining splices in the lot shall be radiographically examined.

Additional radiographic examinations performed due to the identification of defective splices shall be at the Contractor's expense.

All defects shall be repaired in accordance with the requirements of AWS D1.4.

Radiographic examinations will not be required for either shop produced complete joint penetration butt welds or shop produced resistance butt welded splices of No. 8 or smaller bars used as spiral or hoop reinforcement.

In addition to radiographic examinations performed by the Contractor, any mechanical or welded splice may be subject to inspection or nondestructive testing by the Engineer. The Contractor shall provide sufficient access facilities in the shop and at the jobsite to permit the Engineer or his agent to perform the inspection or testing.

The Contractor shall notify the Engineer in writing 48 hours prior to performing any radiographic examinations.

The radiographic procedure used shall conform to the requirements of ASME Boiler and Pressure Vessels Code, Section V, Article 2 and the following:

Two exposures shall be made for each complete joint penetration butt welded splice. For each of the two exposures, the radiation source shall be centered on each bar to be radiographed. The first exposure shall be made with the radiation source placed at zero degrees from the top of the weld and perpendicular to the weld root and identified with a station mark of "0." When obstructions prevent a zero degree placement of the radiation source for the first exposure, and when approved in writing by the Engineer, the source may be rotated, around the centerline of the reinforcing bar, a maximum of 25 degrees. The second exposure shall be at 90 degrees to the "0" station mark and shall be identified with a station mark of "90."

For field produced complete joint penetration butt welds, no more than one weld shall be radiographed during one exposure. For shop produced complete joint penetration butt welds, if more than one weld is to be radiographed during one exposure, the angle between the root line of each weld and the direction to the radiation source shall be not less than 65 degrees.

Radiographs shall be made by either X-ray or gamma ray. Radiographs made by X-ray or gamma rays shall have densities of not less than 2.3 nor more than 3.5 in the area of interest. A tolerance of 0.05 in density is allowed for densitometer variations. Gamma rays shall be from the iridium 192 isotope and the emitting specimen shall not exceed 0.175-inch in the greatest diagonal dimension.

The radiographic film shall be placed perpendicular to the radiation source at all times; parallel to the root line of the weld unless source placement determines that the film must be turned; and as close to the root of the weld as possible.

The minimum source to film distance shall be maintained so as to insure that all radiographs maintain a maximum geometric unsharpness of 0.020 at all times, regardless of the size of the reinforcing bars.

All penetrameters shall be placed on the source side of the bar and perpendicular to the radiation source at all times. One penetrameter shall be placed in the center of each bar to be radiographed, perpendicular to the weld root, and adjacent to the weld. Penetrameter images shall not appear in the weld area.

When radiography of more than one weld is being performed per exposure, each exposure shall have a minimum of one penetrameter per bar, or three penetrameters per exposure. When three penetrameters per exposure are used, one penetrameter shall be placed on each of the two outermost bars of the exposure, and the remaining penetrameter shall be placed on a centrally located bar.

An allowable weld buildup of 1/8 inch may be added to the total material thickness when determining the proper penetrameter selection. No image quality indicator equivalency will be

accepted. Wire penetrameters or penetrameter blocks shall not be used.

Penetrameters shall be sufficiently shimmed using a radiographically identical material. Penetrameter image densities shall be a minimum of 2.0 and a maximum of 3.6.

All radiographic film shall be Class 1, regardless of the size of reinforcing bars.

Radiographs shall be free of film artifacts and processing defects, including, but not limited to, streaks, scratches, pressure marks, or marks made for the purpose of identifying film or welding indications.

Each splice shall be clearly identified on each radiograph and the radiograph identification and marking system shall be established between the Contractor and the Engineer before radiographic inspection begins. Film shall be identified by lead numbers only; etching, flashing, or writing in identifications of any type will not be permitted. Each piece of film identification information shall be legible and shall include, as a minimum, the following information: Contractor's name, date, name of nondestructive testing firm, initials of radiographer, contract number, part number, and weld number. The letter "R" and repair number shall be placed directly after the weld number to designate a radiograph of a repaired weld.

Radiographic film shall be developed within a time range of one minute less to one minute more than the film manufacturer's recommended maximum development time. Sight development will not be permitted.

Processing chemistry shall be done with a consistent mixture and quality, and processing rinses and tanks shall be clean to ensure proper results. Records of all developing processes and any chemical changes to the developing processes shall be kept and furnished to the Engineer upon request. The Engineer may request, at any time, that a sheet of unexposed film be processed in the presence of the Engineer to verify processing chemical and rinse quality.

All radiographs shall be interpreted and graded by a Level II or Level III technician who is qualified in accordance with the American Society for Nondestructive Testing's Recommended Practice No. SNT-TC-1A**.** The results of these interpretations shall be recorded on a signed certification and a copy kept with the film packet.

Technique sheets prepared in accordance with ASME Boiler and Pressure Vessels Code, Section V, Article 2 Section T-291 shall also contain the developer temperature, developing time, fixing duration and all rinse times.

All radiographic envelopes shall have clearly written on the outside of the envelope the following information: name of the Contractor's QCM, name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers or a report number, as detailed in the Contractor's QCP. In addition, all innerleaves shall have clearly written on them the part description and all included weld numbers, as detailed in the Contractor's QCP.

10-1.28 EPOXY-COATED REINFORCEMENT

Epoxy-coated reinforcement shall conform to the provisions in Section 52, "Reinforcement," of the Standard Specifications and these special provisions.

Section 52-1.02B, "Epoxy-coated Bar Reinforcement," of the Standard Specifications is replaced with the following:

52-1.02B Epoxy-coated Prefabricated Reinforcement.—Bar reinforcement to be epoxy-coated shall conform to the ASTM Designation and grade required or permitted by Section 52-1.02A, "Bar Reinforcement," for the location or type of structure involved. The coated bar reinforcement shall conform to the provisions of ASTM Designation: A 934/A 934M except as provided herein.

Wire reinforcement to be epoxy-coated shall conform to the ASTM Designation and grade required or permitted by Section 52-1.02D, "Reinforcing Wire and Plain Bars," for the location or type of structure involved. The coated wire reinforcement shall conform to the provisions for Class A, Type 2 coating of ASTM Designation: A 884/A 884M except as provided herein.

Appendix X2, "Guidelines For Job-Site Practices," of ASTM Designation: A 934/A 934M and Appendix X1, "Guidelines For Job-Site Practices," of ASTM Designation: A 884/A 884M shall apply except as provided herein. The term "shall" shall replace the term "should" in these appendices.

All coatings shall be purple or gray in color.

Except for field welding of butt splices, all welding to reinforcement shall be complete prior to epoxy coating the reinforcement.

Bending of epoxy-coated reinforcement after the coating is applied will not be allowed except where reinforcement passing through cored holes in bent caps requires field bending. All field bends for epoxy-coated reinforcement shall be coated with a corrosion protection covering that is on the Department's list of approved products. The covering shall be installed in accordance with the manufacturer's recommendations and as directed by the Engineer. The list is available from the Office of Materials Engineering and Testing Services, 5900 Folsom Boulevard, Sacramento, CA 95819, telephone (916) 227-7000.

Full compensation for repairing damage to the epoxy coating on reinforcement which must be field bent shall be considered as included in the contract price paid per pound for epoxy-coated bar reinforcement and no additional compensation will be allowed therefor.

Except where limits of epoxy coating are shown on the plans, when any portion of a reinforcing bar or wire requires epoxy coating, the entire bar or wire shall be coated.

Within areas where epoxy-coated reinforcement is required, tie wire and bar chairs or other metallic devices used to secure or support the reinforcement shall be plastic-coated or epoxy-coated to prevent corrosion of the devices or damage to the coated reinforcement.

Prior to coating, the Contractor shall furnish to the Transportation Laboratory a representative 4-ounce sample from each batch of epoxy coating material to be used. Each sample shall be packaged in an airtight container identified with the manufacturer's name and batch number.

Two 30-inch long samples of coated bar or wire reinforcement from each size and from each load shipped to the jobsite shall be furnished to the Engineer for testing. These samples shall be representative of the material furnished. These samples, as well as any additional random samples taken by the Engineer, may be tested for specification compliance. Additional sampling, and all tests performed by the Engineer, may be performed at any location deemed appropriate by the Engineer. Failure of any sample to meet the requirements of the specifications will be cause for rejection.

If any bar tested for coating thickness or for adhesion of coating fails to meet the requirements for coated bars in Section 9 of ASTM Designation: A 934/A 934M, 2 retests on random samples of the bars represented by the failed test will be conducted for each failed test. If the results of both retests meet the specified requirements, the coated bars represented by the samples may be certified as meeting the test requirements.

If any wire reinforcement tested for coating thickness or for flexibility fails to meet the requirements for coated wire in Section 8 of ASTM Designation: A 884/A 884M, 2 retests on random samples of the wire represented by the failed test will be conducted for each failed test. If the results of both retests meet the specified requirements, the coated wire represented by the samples may be certified as meeting the test requirements.

Epoxy-coated reinforcement shall be covered with an opaque polyethylene sheeting or other suitable protective material to protect the reinforcement from exposure to sunlight, salt spray and weather. For stacked bundles, the protective covering shall be draped around the perimeter of the stack. The covering shall be adequately secured; however, it should allow for air circulation around the reinforcement to prevent condensation under the covering. Epoxy-coated reinforcement shall not be stored within 1000 feet of ocean or tidal water for more than 2 months.

All visible damage to coatings caused by shipping, handling or installation shall be repaired as required for repairing coating damaged prior to shipment as specified in ASTM Designation: A 934/A 934M for bar reinforcement or ASTM Designation: A 884/A 884M for wire reinforcement. When the extent of said coating damage prior to repair exceeds 2 percent of the bar or wire surface area in any one foot length, repairing of the bar or wire will not be allowed and the coated bar or wire will be rejected.

Patching material shall be feasible for repairs by the coating applicator, fabricator or in the field. The patching material shall be prequalified as required for the coating material and shall be either identified on the container as a material compatible with the reinforcement coating, or shall be accompanied by a Certificate of Compliance certifying that the material is compatible with the reinforcement coating. Patching of damaged areas shall be performed in accordance with the patching material manufacturer's recommendations.

Except for lap splices, all splices for epoxy-coated reinforcement shall be coated with a corrosion protection covering that is on the Department's list of approved products. The covering shall be installed in accordance with the manufacturer's recommendations and as directed by the Engineer. The list is available from the Office of Materials Engineering and Testing Services, 5900 Folsom Boulevard, Sacramento, CA 95819, telephone (916) 227-7000.

10-1.29 STEEL STRUCTURES

Construction of steel structures shall conform to the provisions in Section 55, "Steel Structures," of the Standard Specifications and these special provisions.

Attention is directed to "Field Welding Quality Control" elsewhere in these special provisions.

Structural steel (bridge) shall consist of the steel yoke units and associated hardware included for connection to the existing structure. All structural steel shall be hot-dip galvanized after fabrication.

The first paragraph in Section 55-1.02, "Drawings," of the Standard Specifications is amended to read:

The Contractor shall submit working drawings for structural steel to the Office of Structure Design, Documents Unit, P.O. Box 942874, Mail Stop 9, Sacramento, California 94274-0001 (1801 30th Street, Sacramento, CA 95816), telephone (916) 227-8230, for approval in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings". For initial review, 6 sets of the drawings

shall be submitted for highway bridges and 10 sets shall be submitted for railroad bridges. After review, between 6 and 12 sets, as requested by the Engineer, shall be submitted to the Office for final approval and for use during construction.

The seventh paragraph in Section 55-1.02, "Drawings," of the Standard Specifications is amended to read:

At the completion of each structure on the contract, one set of reduced prints on 60 pound (minimum) bond paper, 11 inches by 17 inches in size, of the corrected original tracings of all working drawings for each structure shall be furnished to the Engineer. Reduced prints that are common to more than one structure shall be submitted for each structure. An index prepared specifically for the drawings for each structure containing sheet numbers and titles shall be included on the first reduced print in the set for each structure. Reduced prints for each structure shall be arranged in the order of drawing numbers shown in the index.

The eighth paragraph in Section 55-1.02, "Drawings," of the Standard Specifications is amended to read:

The edge of the corrected original tracing image shall be clearly visible and visually parallel with the edges of the page. A clear, legible symbol shall be provided on the upper left side of each page to show the amount of reduction and a horizontal and vertical scale shall be provided on each reduced print to facilitate enlargement to original scale.

In addition to the submittals required in Section 55-1.03, "Inspection," of the Standard Specifications, the Contractor shall furnish certified test reports of tests on fastener components and fastener assemblies performed prior to shipment to the job-site. Fastener assemblies shall consist of the following components: high-strength bolt, or equivalent fastener, nut and washer. Certified test reports for fastener components and fastener assemblies shall be furnished to the Engineer prior to use of the fastener assembly. The certified test reports shall include the rotational capacity lot numbers for tensioned fasteners and test reports specified in the certification, report, and certification and test report sections in the appropriate ASTM specifications for the fastener components.

STRUCTURAL STEEL MATERIALS.--The first paragraph, including the material table, in Section 55-2.01, "Description," of the Standard Specifications is amended to read:

Description.--The various materials shall conform to the specifications of ASTM as listed in the following tabulation with certain modifications and additions as specified:

MATERIAL	SPECIFICATION
Structural steel	ASTM Designation: A 709/A 709M, Grade 36 [250] or * A 36/A 36M
High strength low alloy columbium vanadium steel	ASTM Designation: A 709/A 709M, Grade 50 [345] or * A 572/A 572M, Grade 50 [345]
High strength low alloy structural steel	ASTM Designation: A 709/A 709M, Grade 50W [345 W] or * A 588/A 588M
High-yield strength, quenched and tempered alloy steel plate suitable for welding	ASTM Designation: A 709/A 709M, Grade 100 [690] and Grade 100W [690W] or * A 514/A 514M
Steel fasteners for general applications:	
Bolts and studs which include threaded rods and nonheaded anchor bolts	ASTM Designation: A 307 or AASHTO Designation: M 314, Grade 36 or 55
Nuts	ASTM Designation: A 563 including Appendix X1
Washers	ASTM Designation: F 844
High strength steel fasteners:	
Bolts for structural steel joints	ASTM Designation: A 325 or A 325M
Bolts and studs which include threaded rods and nonheaded anchor bolts, for general applications	ASTM Designation: A 449
Nuts	ASTM Designation: A 563 including Appendix X1 or A 563M including Appendix X1
Washers	ASTM Designation: F 436 or F 436M
Direct tension indicators	ASTM Designation: F 959 or F 959M

Carbon steel for forgings, pins and rollers	ASTM Designation: A 668/A 668M, Class D
Alloy steel for forgings	ASTM Designation: A 668/A 668M, Class G
Pin nuts	ASTM Designation: A 36/A 36M
Carbon-steel castings	ASTM Designation: A 27/A 27M, Grade 65-35 [450-240], Class 1
Malleable iron castings	ASTM Designation: A 47, Grade 32510 or A 47M, Grade 22010
Gray iron castings	ASTM Designation: A 48, Class 30B
Carbon steel structural tubing	ASTM Designation: A 500, Grade B or A 501
Steel pipe (Hydrostatic testing will not apply)	ASTM Designation: A 53, Type E or S, Grade B; A 106, Grade B; or A 139, Grade B
Stud connectors	ASTM Designation: A 108 and ANSI/AASHTO/AWS D1.5
* Grades that may be substituted for the equivalent ASTM Designation: A 709 steel, at the Contractor's option, subject to the modifications and additions specified and to the requirements of A 709.	

The second paragraph in Section 55-2.01, "Description," of the Standard Specifications is deleted.

The fifth paragraph in Section 55-2.01, "Description," of the Standard Specifications is amended to read:

All structural steel plate used for the fabrication of tension members, tension flanges, eyebars and hanger plates and for splice plates of tension members, tension flanges and eyebars shall meet the longitudinal Charpy V-notch impact value requirements specified herein. Sampling procedures shall conform to the provisions in ASTM Designation: A 673/A 673M. The H (Heat) frequency of testing shall be used for structural steels conforming to ASTM Designations: A 709/A 709M, Grades 36, 50 and 50W. The P (Piece) frequency of testing shall be used for structural steel conforming to ASTM Designation: A 709/A 709M, Grades 100 and 100W. Charpy V-notch impact values shall be determined in accordance with ASTM Designation: E 23.

The first paragraph in Section 55-2.02, "Structural Steel," of the Standard Specifications is amended to read:

Unless otherwise specified or shown on the plans, all structural steel plates, shapes and bars shall conform to ASTM Designation: A 709/A 709M, Grade 36.

Rotational capacity tests shall be performed on fastener assemblies prior to shipment to the job-site in accordance with the provisions of ASTM Designation: A 325 and the following:

A. Each combination of bolt production lot, nut lot and washer lot shall be tested as an assembly.

B. A rotational capacity lot number shall be assigned to each combination of lots tested, and the minimum frequency of testing shall be 2 assemblies per rotational capacity lot.

C. Tests shall be performed in accordance with the requirements for long or short bolts in Appendix A-1 of "High-Strength Bolts for Bridges," Report No. FHWA-SA-91-031, dated May 1991.

Each shipping unit of fastener assemblies shall be plainly marked with the rotational capacity lot number.

CHECK TESTING.--Structural steel shall conform to the designated ASTM Standard and the check testing requirements of this section.

Check samples shall be furnished for each heat of maximum thickness of:

Tension flanges and webs of steel yoke units.

Steel plates, shapes or bars containing check samples shall be furnished from the mill with extra length in order to provide for removal of material for check samples at the point of fabrication. Check samples may be cut from either end of the designated plate, shape or bar.

At the option of the Contractor, check samples may be removed at the rolling mill rather than at the point of fabrication. The sample will be removed from the mill plate that will be stripped by the fabricator to produce the designated plate and may be taken from any location within that plate. The mill plate from which samples are removed shall be marked with the same identifying numbers as are used on the samples. If the Contractor requests that samples be removed at the rolling mill, the Contractor will be charged for the cost of providing State inspection at the mill to witness the removal of samples, as provided in Measurement and Payment of these special provisions.

Unless otherwise directed, material for check samples shall be removed by the Contractor in the presence of the Engineer. Check samples for plates wider than 24 inches shall be 14 inches wide and 18 inches long with the long dimension transverse to the direction of rolling. Check samples for all other products shall be 18 inches long, taken in the direction of rolling, and the width shall be the product width. Check samples shall be removed and

delivered to the Engineer before the material is fabricated into components and preferably when it is still being prepared for fabrication. The direction of rolling, heat numbers, and plate numbers shall be marked on the samples with paint or other indelible marking material or may be steel stamped in one corner of the plate.

Unless otherwise directed, check samples shall be delivered to the Transportation Laboratory at the Contractor's expense. The check samples will be tested by the Transportation Laboratory for compliance with the requirements specified in ASTM and these special provisions. Check sample test results will be reported to the Contractor within 10 working days of delivery to the Transportation Laboratory. In the event several samples are submitted on the same day, an additional day will be added for each 2 samples submitted. The test report will be made for the group of samples.

The results of the tensile and impact tests shall not vary more than 5 percent below specified minimum or 5 percent above specified maximum requirements except that if the initial check test results vary more than 5 percent but not more than 10 percent from the specified requirements, a re-test may be performed on another sample from the same heat and thickness. The results of the re-test shall not vary more than 5 percent from the original specified requirements. If the results of check tests exceed these permissible variations, all material planned for use from the heat represented by said check samples shall be subject to rejection.

FABRICATION.--The first subparagraph of the third paragraph in Section 55-3.14, "Bolted Connections," of the Standard Specifications is amended to read:

> Contact surfaces of all high-strength bolted connections shall be cleaned and coated with waterborne inorganic zinc coating before assembly in accordance with the provisions for cleaning and painting structural steel in the special provisions. The total thickness of coating on each surface shall be between one and 4 mils and may be applied in one application.

When properly installed, bolts, threaded studs and rods, and anchor bolts, shall extend at least 1/8-inch beyond the outer face of the nut.

Prior to acceptance or installation, and after shipment of the fastener assemblies to the job-site, the Contractor shall perform installation tension tests and rotational capacity tests on fastener assemblies. The installation tension tests and rotational capacity tests shall be performed at the job-site, in the presence of the Engineer, on each rotational capacity lot of fastener assemblies. The installation tension tests shall be performed on 3 representative fastener assemblies in accordance with Section 8, "Installation and Tightening," of the “Specification for Structural Joints Using ASTM A 325 or A 490 Bolts,” approved by the Research Council on Structural Connections of the Engineering Foundation. The rotational capacity tests shall be performed in accordance with the procedures for rotational capacity tests in "Structural Steel Materials," of these special provisions.

Additional installation tension tests and rotational capacity tests shall be performed, when ordered by the Engineer, if significant changes are noted in original surface condition of threads, washers or nut lubricant. Failure of a job-site installation tension test or a rotational capacity test will be cause for rejection of all fastener components in the rotational capacity lot.

Bolt, or equivalent fastener, nut and washer combinations used in high-strength bolted connections shall be from the same rotational capacity lot.

The sheared ends of tension control bolts shall be completely sealed with non-silicone type sealing compound conforming to the provisions in Federal Specification TT-S-230, Type II. The sealant shall be gray in color and shall have a minimum thickness of 50 mils. The sealant shall be applied to a clean sheared surface on the same day that the splined end is sheared off.

WELDING.--The third paragraph of Section 55-3.17, "Welding," of the Standard Specifications is amended to read:

> The extent of radiographic testing on groove welds shall be in accordance with the requirements in ANSI/AASHTO/AWS D1.5, Subsection 6.7.1.2. In addition, twenty-five percent of all main member tension groove welds, in material in excess of 1/2 inch thickness, shall be ultrasonically tested.

The flat side of all butt welded joints shall not deviate from flatness by more than 3/16 inch in a length of 2 feet centered over the weld joint.

ELASTOMERIC BEARING PADS.--Elastomeric bearing pads shall conform to the provisions in Section 51-1.12H, "Elastomeric Bearing Pads," of the Standard Specifications and these special provisions.

The fifth paragraph of Section 51-1.12H(1), "Plain and Fabric Reinforced Elastomeric Bearings," of the Standard Specifications is amended to read:

> The peel strength test will be performed after immersing the sample in water for a minimum of 10 days. The bond between elastomer and fabric shall be such that when a sample is tested for separation, it shall have a minimum peel strength of 30 pounds per inch when tested in accordance with California Test 663.

The last 2 sentences of the tenth paragraph of Section 51-1.12H(1), "Plain and Fabric Reinforced Elastomeric Bearings," of the Standard Specifications are amended to read:

Pads shall be available for sampling at least 4 weeks in advance of intended use. All sample pads for testing shall be furnished by the Contractor at his expense.

The fifth subparagraph of the first paragraph of Section 51-1.12H(2), "Steel Reinforced Elastomeric Bearings," of the Standard Specifications is amended to read:

One sample bearing shall be furnished to the Engineer from each lot of bearings to be furnished for the contract. Samples shall be available at least 3 weeks in advance of intended use. The sample bearing shall be one of the following:

BEARING PAD THICKNESS AS SHOWN ON THE PLANS	SAMPLE BEARING
2 inches or less.....	Smallest complete bearing shown on the plans.
Greater than 2 inches.....	* 2.25±0.125 inch thick sample not less than 8 inches by 12 inches in plan and cut by the manufacturer from the center of one of the thickest complete bearings.

* The sample bearing plus remnant parts of the complete bearing shall be furnished to the Engineer.

MEASUREMENT AND PAYMENT.--Measurement and payment for steel structures shall conform to the provisions in Sections 55-4.01, "Measurement," and 55-4.02, "Payment," of the Standard Specifications and these special provisions.

The sixth paragraph in Section 55-4.02, "Payment," of the Standard Specifications is amended to read:

If a portion or all of the welded structural steel is fabricated more than 300 air line miles from both Sacramento and Los Angeles, additional shop inspection expenses will be sustained by the State. Whereas it is and will be impracticable and extremely difficult to ascertain and determine the actual increase in such expenses, it is agreed that payment to the Contractor for furnishing said structural steel from each fabrication site located more than 300 air line miles from both Sacramento and Los Angeles will be reduced $5,000 or by an amount computed at $0.020 per pound of structural steel fabricated, whichever is greater, or in the case of each fabrication site located more than 3,000 air line miles from both Sacramento and Los Angeles, payment will be reduced $8,000 or by $0.036 per pound of structural steel fabricated, whichever is greater.

If a portion or all of check samples are removed at a mill more than 300 air line miles from both Sacramento and Los Angeles, shop inspection expenses will be sustained by the State which are in addition to expenses incurred for fabrication site inspection. Payment to the Contractor for furnishing structural steel will be reduced $2,000 for each mill located more than 300 air lines miles from both Sacramento and Los Angeles.

Full compensation for washing existing concrete contact surfaces shall be considered as included in the contract price paid per pound for erect structural steel (bridge) and no additional compensation will be allowed therefor.

Full compensation for elastomeric bearing pads shall be considered as included in the contract price paid per pound for erect structural steel (bridge) and no additional compensation will be allowed therefor.

10-1.30 MISCELLANEOUS METAL (BRIDGE)

Miscellaneous metal (bridge) shall conform to the provisions for miscellaneous bridge metal in Section 75, "Miscellaneous Metal," of the Standard Specifications and these special provisions.

Attention is directed to “Field Welding Quality Control” elsewhere in these special provisions.

Miscellaneous metal (bridge) shall consist of the miscellaneous bridge metal items listed in Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications, and the following:

Steel Channel Seat Extenders
Plate Washers
HS Nuts
HS Bolts
HS Rods
Tapered Washers
1/2” Hardened Steel Chain
3/4” Eye Bolts
Backer Plates
Deck Plates

All miscellaneous bridge metal, except high strength rods and high strength bolts, shall be hot-dip galvanized after fabrication.

An approved thread locking system, consisting of a cleaner, primer and anaerobic adhesive, shall be applied where shown on the plans. Lubricants and foreign materials shall be removed from the threaded areas of both parts using the cleaner and small wire brush. The primer shall be applied to cover the threaded areas of both parts. The anaerobic adhesive shall be applied to fill the male threads in the area of the final position of the nut. The nut shall be installed at the location or to the torque shown on the plans, and an additional fillet of anaerobic adhesive shall be applied completely around the exposed junctions of the nut and male part. Full compensation for furnishing and applying the thread locking system shall be considered as included in the contract price paid for the

item of work requiring the system and no separate payment will be made therefor.

The third subparagraph of the second paragraph of Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications is amended to read:

3. Manhole frames and covers, frames and grates, ladder rungs, guard posts, and access door assemblies.

The third subparagraph of the eleventh paragraph of Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications is amended to read:

Cast-in-place inserts shall be the ferrule loop type.

All metal parts of anchorage devices shall be fabricated from stainless steel conforming to the requirements of ASTM Designation: A 276, Type 304 or 316.

The second paragraph in Section 75-1.06, "Measurement," of the Standards Specifications is amended to read:

Scale weights will not be required when miscellaneous iron and steel, miscellaneous bridge metal, miscellaneous metal (restrainer), or pumping plant metal work are designated as final pay items in the Engineer's Estimate.

Full compensation for 1" drilled holes shall be considered as included in the contract price paid per pound for miscellaneous metal (bridge) and no additional compensation will be allowed therefor.

10-1.31 DECK PLATE ASSEMBLY

The deck plate assembly shall conform to the details shown on the plans, the provisions for miscellaneous bridge metal in Section 75, "Miscellaneous Metal," of the Standard Specifications, and these special provisions.

The deck plate assembly shall consist of the following:

Main Plates
Platform Plate
Seal Plates
Stiffeners
Plates
Bolts
Nuts and Washers
Curb Plate
Elastomeric Bearing Pad Material

An approved thread locking system, consisting of a cleaner, primer and anaerobic adhesive, shall be applied where shown on the plans. Lubricants and foreign materials shall be removed from the threaded areas of both parts using the cleaner and small wire brush. The primer shall be applied to cover the threaded areas of both parts. The anaerobic adhesive shall be applied to fill the male threads in the area of the final position of the nut. The nut shall be installed at the location or to the torque shown on the plans, and an additional fillet of anaerobic adhesive shall be applied completely around the exposed junctions of the nut and male part. Full compensation for furnishing and applying the thread locking system will considered as included in the contract price paid for the item of work requiring the system and no separate payment will be made therefor.

The third subparagraph of the eleventh paragraph of Section 75-1.03, "Miscellaneous Bridge Metal," of the Standard Specifications is amended to read:

Cast-in-place inserts shall be the ferrule loop type.

All metal parts of anchorage devices shall be fabricated from stainless steel conforming to the requirements of ASTM Designation: A 276, Type 304 or 316.

SLIDING JOINTS.--Sliding joints consisting of steel plates lubricated with grease shall conform to the following requirements:

Grease shall conform to the requirements of Military Specification: MIL-S-8660. A uniform film of grease shall be applied to the upper surface of the neoprene strip prior to placing the sheet metal.

Construction methods and procedures shall prevent grout or concrete seepage into the sliding joint assembly.

ELASTOMERIC BEARING PAD MATERIAL.-- Elastomeric bearing pad material shall conform to the provisions in Section 51-1.12H, "Elastomeric Bearing Pads," of the Standard Specifications and these special provisions.

The fifth paragraph of Section 51-1.12H(1), "Plain and Fabric Reinforced Elastomeric Bearings," of the Standard Specifications is amended to read:

The peel strength test will be performed after immersing the sample in water for a minimum of 10 days. The bond between elastomer and fabric shall be such that when a sample is tested for separation, it shall have a minimum peel strength of 30 pounds per inch when tested in accordance with California Test 663.

The last 2 sentences of the tenth paragraph of Section 51-1.12H(1), "Plain and Fabric Reinforced Elastomeric Bearings," of the Standard Specifications are amended to read:

Pads shall be available for sampling at least 4 weeks in advance of intended use. All sample pads for testing shall be furnished by the Contractor at his expense.

NONSKID SURFACE.--Where shown on the plans, deck expansion plates shall receive a nonskid surface consisting of a composite tungsten carbide traction surface. The composite shall conform to the provisions specified in these special provisions.

The traction surface shall be produced by the MIG/Carbide Welding Process. The tungsten carbide must applied to the plate surface in a blocky shape, have a high concentration of medium to fine particles in the deposit (similar to sand particles), and shall conform to the following:

CHEMISTRY/PHYSICAL SIZING

Chemistry:	Target	Minimum	Maximum
Cobalt	7.0%	5.5%	9.0%
Iron	0.0%	0.0%	10.0%
Carbides	Balance	----	----

Physical Sizing:

+20 mesh	0.0%	0.0%	Trace
+25 mesh	0.0%	0.0%	5.0%
+30 mesh	0.0%	0.0%	25.0%
-30+60 mesh	Balance	----	----
-60 mesh	0.0%	0.0%	15.0%
-100 mesh	0.0%	0.0%	1.0%

The coverage rate of the tungsten carbine shall be a minimum of 1 pound of tungsten carbide per 20 square inches of weld.

The pattern of the composite traction surface shall be uniform and shall have a coefficient of friction of not less than 0.35 at the time the surface is opened to traffic. The coefficient of friction will be measured by California Test 342. Portions of completed surfaces that are found to have a coefficient of friction less than 0.35 shall be corrected to produce a coefficient of friction not less than 0.35. The weld width of the composite traction surface shall be between 15/16 inch and 17/16 inch, and the total thickness shall be between 1/8 inch and 3/16 inch.

The Contractor shall submit to the Engineer for approval a method of application of the composite traction surface. The Contractor shall demonstrate the method of application to the Engineer, prior to placing any nonskid material, by preparing a one square foot sample placed on metal similar to that which will be used in the final product. The composite traction surface shall have a total thickness of between 1/8 inch and 3/16 inch.

MEASUREMENT AND PAYMENT.--Deck plate assembly will be measured and paid for in the same manner specified for miscellaneous bridge metal in Section 75, "Miscellaneous Metal," of the Standard Specifications.

Full compensation for furnishing and placing nonskid surface shall be considered as included in the contract price paid per pound for deck plate assembly and no separate payment will be made therefor.

Full compensation for furnishing and placing the elastomeric bearing pad material used in the deck plate assembly shall be considered as included in the contract price paid per pound for deck plate assembly and no additional compensation will be allowed therefor.

10-1.32 METAL BEAM GUARD RAILING

Metal beam guard railing shall conform to the provisions in Section 83-1, "Railings," of the Standard Specifications and these special provisions.

Attention is directed to "Order of Work" of these special provisions.

Line posts and blocks shall be wood.

The ninth, eleventh and twelfth paragraphs in Section 83-1.02B, "Metal Beam Guard Railing," of the Standard Specifications are amended to read:

Wood posts and blocks shall be timbers No. 1 (structural) grade Douglas fir or timbers No. 1 grade Southern yellow pine. Wood posts and blocks shall be graded in accordance with the provisions in Section 57-2, "Structural Timber," except allowances for shrinkage after mill cutting shall in no case exceed 5 percent of the American Lumber Standards minimum sizes, at the time of installation.

Wood posts and blocks shall be pressure treated after fabrication as provided in Section 58, "Preservative Treatment of Lumber, Timber and Piling," with creosote, creosote-coal tar solution, creosote-petroleum solution (50-50), pentachlorophenol in hydrocarbon solvent, copper naphthenate, ammoniacal copper arsenate, ammoniacal copper zinc arsenate, or chromated copper arsenate (Southern yellow pine only) except that, when other than one of the creosote processes is used, blocks shall have a minimum retention of 0.40-pound per cubic foot and need not be incised.

If copper naphthenate, ammoniacal copper arsenate, chromated copper arsenate, or ammoniacal copper zinc arsenate is used to treat the wood posts and blocks, the bolt holes shall be treated as follows:

Before the bolts are inserted, all bolt holes shall be filled with a grease, recommended by the manufacturer for corrosion protection, which will not melt or run at a temperature of 150° F.

Metal beam guard rail elements and any required backup plates, terminal sections, end sections, and return sections shall conform to the requirements of Type 2 W-Beam as shown in AASHTO Designation: M 180.

A terminal section Type M shall consist of a return section, 2 diaphragms, and a terminal connector.

Anchor assembly (breakaway, Type M) shall be constructed as shown on the plans and shall conform to the provisions for cable anchor assemblies in Section

83-1.02B, "Metal Beam Guard Railing," of the Standard Specifications and the following:

An anchor assembly (breakaway, Type M) for metal beam guard railing shall consist of a cable assembly and anchor plate, a strut and yoke assembly, a bearing plate, a shelf angle, 2 steel tube anchors, 2 soil plates, and all required hardware.

The steel tube anchors, with the soil plates attached, shall be driven, with or without pilot holes, or shall be placed in drilled holes, at the option of the contractor. Any space around steel tube anchors shall be backfilled with selected earth, free of rock, placed in layers approximately 0.33-foot thick and each layer shall be moistened and thoroughly compacted. The wood terminal posts shall be inserted into the steel tube anchor by hand and shall not be driven. Before the wood terminal post is inserted, the inside surfaces of the steel tube anchor to receive the wood post shall be coated with a grease which will not melt or run at a temperature of 65°C. The edges of the wood terminal posts may be slightly rounded to facilitate insertion of the post into the steel tube anchor.

Steel yoke and strut assembly shall be fabricated from steel complying with the requirements of ASTM Designation: A 36. Steel tubing used for steel tube anchors shall conform to the requirements of ASTM Designation: A 500, Grade B, or ASTM Designation: A 501.

Anchor assembly (breakaway, Type M) will be measured and paid for by the unit in the same manner specified for cable anchor assemblies in Sections 83-1.03, "Measurement," and 83-1.04, "Payment," of the Standard Specifications.

Breakaway wood guard rail posts for Type 8M flares may be field bored to provide the 3 1/2-inch diameter holes as shown on the plans. Where field cutting or boring is performed after treatment, all cuts and holes shall be thoroughly swabbed, sprayed, or brushed as provided in Section 83-1.02B, "Metal Beam Guard Railing," of the Standard Specifications.

Full compensation for drilling or boring 3 1/2-inch diameter holes in breakaway wood guard rail posts used with Types 1M and 8M flares and for furnishing and installing shelf angles on breakaway wood guard rail posts used with Types 1M and 8M flares shall be considered as included in the contract unit price paid for anchor assembly (breakaway, Type M) and no separate payment will be made therefor.

10-1.33 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS

Thermoplastic traffic stripes (traffic lines) shall conform to the provisions in Sections 84-1, "General," and 84-2, "Thermoplastic Traffic Stripes and Pavement Markings," of the Standard Specifications and these special provisions.

The State Specification No. for glass beads in Section 84-2.02, "Materials," of the Standard Specifications is amended to read "8010-21C-22 (Type II)."

Thermoplastic material shall conform to the requirements of State Specification No. 8010-21C-19.

At the option of the Contractor, permanent striping tape as specified in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions, may be placed instead of the thermoplastic traffic stripes specified herein, except that STAMARK Brand Pavement Tape, Bisymmetric 1.75 Grade, manufactured by the 3M Company, shall not be used. Pavement tape, if used, shall be installed in accordance with the manufacturer's specifications. If pavement tape is placed instead of thermoplastic traffic stripes , the pavement tape will be measured and paid for as thermoplastic traffic stripe.

10-1.34 PAVEMENT MARKERS

Pavement markers shall conform to the provisions in Section 85, "Pavement Markers," of the Standard Specifications and these special provisions.

The second paragraph in Section 85-1.02, "Type of Markers," of the Standard Specifications shall not apply.

Certificates of compliance shall be furnished for pavement markers as specified in "Prequalified and Tested Signing and Delineation Materials" elsewhere in these special provisions.

Attention is directed to "Traffic Control System For Lane Closure" elsewhere in these special provisions regarding the use of moving lane closures during placement of pavement markers with bituminous adhesive.

10-1.35 INSTALL SEISMIC MONITORING CASING

Install seismic monitoring casing shall consist of drilling into soil and rock, sampling soil and rock, providing a log of test borings and a boring report, and furnishing and installing casing for seismic monitoring equipment at the downhole locations shown on the plans in the vicinity of Pier 18. Seismic monitoring casing shall be in accordance with the details shown on the plans and these special provisions.

Install seismic monitoring casing includes the following operations in the following order:

1. Drill 3-inch diameter hole, perform Standard Penetration Tests (SPT) and collect rock cores, and prepare a log of test borings and boring report.
2. Allow State forces to perform P-S suspension logging.
3. Drill 8-inch diameter hole for installation of casing.
4. Furnish and install 4-inch diameter polyvinyl chloride (PVC) pipe casing, including equipment furnished and attached to the bottom of the casing by the State.

5. Grout the annulus between the 8-inch diameter hole and the 4-inch diameter casing, and install covers.

MATERIALS.--The seismic monitoring casing shall consist of 4-inch diameter Schedule 80 screw joint (flush) polyvinyl chloride PVC pipe. Each screw joint shall include an O-ring and shall be sealed with an O-ring lubricant.

The casing will have a specially formed sealed cap (Bishops Hat) at the bottom with instrumentation cables extending up through the casing. The Bishops Hat and instrumentation cables will be furnished and installed by State forces.

Grout for placement in the annular space between the casing and the hole shall be proportioned as follows:

Grout Type	Elevation in Hole	Grout Proportion
A	The bottom 35 feet.	2 sacks of cement and 1 sack of bentonite per 60 gallons of water.
B	Up from 35 above the bottom.	12 sacks of cement, and 1 sack of bentonite per 80 gallons of water.

The Contractor shall furnish sufficient quantities of grout for filling the annular space between the casing and the hole.

BORINGS.--Borings shall consist of drilling holes, taking samples, logging borings and furnishing test boring submittals to the Engineer.

The “Soil and Rock Logging Classification Manual” is included in the "Materials Information" available to the Contractor as provided for in Section 2-1.03, "Examination of Plans, Specifications, Contract, and Site of Work," of the Standard Specifications.

The Contractor shall drill borings at the center of each downhole location as shown on the plans and as directed by the Engineer.

The Contractor shall notify the Engineer in writing not less than 10 working days in advance of drilling borings.

All borings shall be made under the site supervision of, the log of test borings stamped by, and the test boring submittal signed by a Geologist or Civil Engineer who is registered in the State of California and has at least five years of geotechnical engineering experience of deep foundations in both soil and rock.

Borings shall be made by rotary drill methods and shall be at least 3 inches in diameter.

Borings shall be drilled to a depth equal to that of the deepest hole at the downhole location.

Standard Penetration Tests (SPT) shall be made in all soil types and performed in accordance with ASTM D1586 in each test boring at 2.5 foot maximum intervals and terminate when bedrock is encountered. Soil classification and descriptions shall conform to the requirements for visual-manual procedures in ASTM D 2488.

Bedrock shall be continuously cored with at least 90% core recovery. Rock shall not be logged from drill cuttings. Rock quality designation (RQD) shall be made taken at 5 foot maximum intervals. Rock shall be cored using an outer and inner core barrel drilling system. The outer core barrel shall be fitted with either a diamond impregnated or polycrystalline drill bit and have an outside diameter of at least 3 inches. The split inner tube core barrel shall have an inside diameter of at least 2 inches.

Prior to removal from the split inner tube barrels and placement into core boxes, rock cores shall be photographed. After core boxes are filled, and prior to removal from the drilling platform, rock cores shall be photographed. All rock core photographs shall be color, 5″ x 7″, and labeled with the borehole number, sample elevation, scale, and date and time photographed.

The rock cores shall be retained in rock core boxes that are labeled with the job contract number, the pile location, and the sample elevation. Rock core boxes shall become the property of the State and will removed from the job site by the State. Prior to their removal from the job site, the Contractor shall preserve and secure the rock core samples in a weather protected facility until notified by the Engineer.

The log of test borings including the soil and rock classification shall conform to the document “Soil and Rock Logging Classification Manual: Field Manual,” published by the Engineering Service Center, Caltrans, dated August 1995.

After completion of all borings, the Contractor shall furnish to the Engineer a test boring submittal that includes photographs of rock cores, a boring report and the log of test borings.

The log of test borings shall conform with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. All log of test borings shall be 22” x 34” in size. For initial review, 4 sets of drawings shall be submitted to the Engineer. Within 3 weeks after final approval of the test boring submittal, one set of the corrected prints on 60 pound (minimum) good quality bond paper, 22" x 34" in size, prepared by the Contractor shall be furnished to the Office of Structure Design, Documents P.O. Box 942874, MS#9, Sacramento, CA 94274-0001 (1801 30th Street, Sacramento, CA 95816).

Log of test borings shall show the State assigned designations for the contract number, bridge number, full name of the structure as shown on the contract plans, and District-County-Route-Post mile on each sheet. The test boring/geotechnical subcontractor name, address, and phone number shall be shown on the working drawings. Each sheet shall be numbered in the lower right hand corner and shall contain a blank space in the upper right

hand corner for future contract sheet numbers. The following shall be shown on the log of test borings:

1. Stationing and offset of boring.
2. Northing and easting coordinates.
3. Reference elevation and datum.
4. Boring start and completion date.
5. Geotechnical notes and miscellaneous explanations.
6. Drill bit and sampler types and diameters.
7. Percent of core recovery and RQD.
8. Sample numbers.
9. SPT data.
10. Depth increments of borings.
11. Graphic log.
12. Soil classifications and descriptions.
13. Rock classifications and descriptions.
14. Log symbol legend.
15. Signature and seal of the Geologist or Civil Engineer.

The boring report shall include the following:

1. Summary of drilling methods, drilling equipment, drill platforms, and any drilling difficulties encountered.
2. Location map of the surveyed position of the borings relative to the existing pier (in California Coordinate System and bridge stationing).
3. Bore hole surveying notes.
4. Photographs of rock cores.
5. Copies of original daily drilling notes.

The Engineer will notify the Contractor in writing when a boring submittal is complete and approved.

All materials utilized in making boring shall be disposed of in accordance with the provisions in "Dredging," elsewhere in these special provisions.

P-S SUSPENSION LOGGING.--P-S suspension logging, consisting of P-wave and S-wave (dilatational wave and shear wave) velocity measurements, will be made by State forces. P-S suspension logging will be made after completion of the Contractor's boring, sampling, and logging operations. The Contractor shall notify the Engineer in writing not less than 5 working days prior to completing boring, sampling, and logging operations in order for the State forces to be on site to perform P-S suspension logging. The Contractor shall allow 3 working days for the State forces to complete P-S suspension logging.

INSTALL CASING.--The seismic monitoring casing shall be installed into an 8-inch diameter hole. The hole shall be drilled by mud rotary methods and shall be centered over the 3-inch diameter hole described in the section "Borings" in these special provisions.

The 4-inch diameter pipe casing shall be installed from the ground surface to the depth as shown on the plans. The Contractor shall notify the Engineer in writing not less than 15 working days prior to installing the casings in order for personnel from the California Division of Mines and Geology (CDMG) to attach the Bishops Hat to the casing and extend instrumentation cables through the casing. CDMG personnel will be on site for the installation and grouting of the casings.

Grouting of the annular space between the casing and the hole shall be done in multiple lifts. Grout shall be delivered at the low end of the void being filled by methods that prevent the mixing of grout with water during charging of the grout delivery tubes and placement of the grout. Until at least 10 feet of grout has been placed, the tips of grout delivery tubes shall be within 6 inches of the bottom of the void being filled. The grout delivery tubes may be raised during grouting, providing that the embedment of the tips are maintained at least 6 feet below the top surface of the grout.

Sufficient grout shall be injected to fill the annular space between the casing and the hole and be expelled at the top of the hole until there is no evidence of entrapped air or water. A minimum grout head of 2 feet shall be maintained above the top of the hole until the grout has set.

All residue from the grouting operation shall be removed after completing the grouting operations and shall be disposed of in accordance with "Dredging," elsewhere in these special provisions.

MEASUREMENT AND PAYMENT.--

Seismic monitoring casing shall be measured and paid for as install seismic monitoring casing. The length of seismic monitoring casing to be paid for shall be the total length in place in the completed work, measured from the bottom tip of the casing to the ground surface.

The contract price paid per linear foot for install seismic monitoring casing shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and installing the casings, complete in place, including drilling into soil and rock, SPT sampling, collecting rock cores, preparing a log of test borings and boring report, furnishing and installing casing, grouting, and disposing of material resulting from drilling holes and grouting, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

SECTION 10-2. (BLANK)

SECTION 10-3. ELECTRICAL SYSTEMS

10-3.01 DESCRIPTION

Modifying electrical and communication systems shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," of the Standard Specifications and these special provisions.

The electrical and communication system (modify) work consists of relocating electrical facilities in conflict

with the seismic retrofit work as shown on the electrical plans. The work includes, but is not limited to the relocation of electrical service, conduit, conduit hangers, junction boxes, and miscellaneous hardware as shown on the plans.

10-3.02 COST BREAK-DOWN

The Contractor shall furnish to the Engineer a cost break-down for each contract lump sum item of work described in this Section 10-3.

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and values shall be included in the cost break-down submitted to the Engineer for approval. The Contractor shall be responsible for the accuracy of the quantities and values used in the cost break-down submitted for approval.

No adjustment in compensation will be made in the contract lump sum prices paid for the various electrical work items due to any differences between the quantities shown in the cost break-down furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in the cost break-down for electrical work shall be equal to the contract lump sum price bid for the work. Overhead and profit shall be included in each individual unit listed in the cost break-down, however, costs for traffic control system shall not be included. Bond premium, temporary construction facilities, plant and other items will not be paid for under the various electrical work items and shall be included in the mobilization bid item for the entire project.

The cost break-down shall be submitted to the Engineer for approval within 15 days after the contract has been approved. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

At the Engineer's discretion the approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the item or items of electrical work due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation may be determined at the Engineer's discretion in the same manner specified for increases and decreases in the quantity of a contract item of work in accordance with Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

The cost breakdown shall, as a minimum, include the following items:

conduit - list by each size and installation method
pull boxes - each type
conductors - each size and type

10-3.03 Maintaining Existing and Temporary Electrical Facilities

Existing electrical systems which traverse across the area designated for the new expansion joint include but are not limited to the following: 1) existing medium voltage, 12.47 kV, feeder for the bridge's electrical facilities; 2) existing lighting circuit for the South trestle HPS Luminaries; 3) existing new call box communication and power circuits for the trestle's telephone call boxes; 4) existing new telemetry communication circuits for the bridge's SCADA (Supervisory Control and Data Acquisition) System; 5) existing old call box communication and power circuits for the trestle's old call boxes; and 6) the existing old telemetry communication circuits for the bridge's old SCADA system.

All power, control, and communication circuits for bridge's electrical facilities are currently in use.

Acceptable lengths of time for equipment removal and relocation shall be as described below. No down time for feeding 12.47 kV power to any of the bridge's substations, etc. shall be acceptable; however, the power distribution system may change current operation to facilitate construction (see acceptable operation of power distribution system below). No down time shall be acceptable for lighting circuits except for the one time required to construct temporary facilities during day light hours and the one time required to remove temporary facilities during day light hours. No down time shall be acceptable for the new call box communication and power circuits except for the one time required to construct temporary facilities during day light hours and the one time required to cut over temporary facilities to new facilities during day light hours. No down time shall be acceptable for the new telemetry communication circuits except for the one time required to construct temporary facilities during day light hours and the one time required to cut over temporary facilities to new facilities during day light hours. Acceptable down times for the old call box and old telemetry power and communication circuits shall be a maximum of 5 working days starting on a Monday morning and ending on a Friday evening.

In addition to the acceptable lengths of time for equipment removal and relocation, the Contractor shall adhere to the requirements of other sections within these special provisions for acceptable lane closure times, etc.

The San Mateo-Hayward Bridge takes electrical service in San Mateo and Hayward. This existing redundant construction allows the bridge to receive power via the 12.47kV system from either San Mateo or Hayward or both. The bridge is currently receiving power from both San Mateo and Hayward with a medium voltage metal-clad switchgear bus tie breaker in substation #3 (Pier 38) operating in the open position. The Contractor shall utilize the redundant utility service feature of the bridge during construction. The contractor shall take the 12.47 feeder between substations #3 and #4 out of service (opening the corresponding bus tie breakers in substation #3 and #4) to facilitate the replacement of

the 12.47kV conductors detailed on the plans. During this construction the bridge will not have its redundancy feature. The acceptable down times for the bridge not having its redundant power distribution capability shall be a maximum of 5 working days starting on a Monday morning and ending on a Friday evening.

10-3.04 CONDUIT

When a standard coupling cannot be used for coupling metal type conduit, a UL listed threaded union coupling, as specified in the third paragraph in Section 86-2.05C, "Installation," of the Standard Specifications, or a concrete-tight split coupling or concrete-tight set screw coupling shall be used.

After conductors have been installed, the ends of conduits terminating in pull boxes, and in service and controller cabinets shall be sealed with an approved type of sealing compound.

10-3.05 CONDUCTORS AND WIRING

Splices shall be insulated by "Method B".

The Contractor shall provide the Engineer a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all the conductors and cables furnished for the project.

Medium Voltage Power Cable, Type HV

The Contractor shall furnish, install and test medium voltage power cable (15kV rated, #1/0 AWG) as shown on the contract drawings.

Cables shall be designed and tested in accordance with the latest editions of the applicable provisions of the following codes and standards including: Institute of Electronic and Electrical Engineers (IEEE); Insulated Cable Engineers Association (ICEA), S-68-516; National Electrical Manufacturers Association (NEMA); Underwriter's Laboratory (UL), MV-105; and National Fire Protection Agency (NFPA), NFPA 70, the National Electric Code.

Cables shall be single-conductor type MV, suitable for installation in wet or dry locations in conduit, underground systems, and exposed to sunlight. Cables shall be listed for 105 Degrees F operation. The conductors shall be unbroken for the full length of the reels and as required for the installation. Installations with splices other than where indicated will be totally rejected.

Cable construction shall be described below.

The conductors shall be annealed, uncoated copper with Class B compressed concentric round stranding. Copper shall be ASTM B-8.

The conductor shall be surrounded by a conductor screen. The conductor screen shall be semi-conducting and extruded directly over the surface of the conductor strands before the installation is applied. The layer shall be thermosetting Ethylene Propylene Rubber. The screen shall have allowable operating temperature equal to or higher than that of the insulation. The outer surface of the screen shall be cylindrical and shall be firmly bonded to the overlying insulation; however, the screen shall be easily removed from the conductor.

The insulation shall be Ethylene Propylene Rubber (EPR). The EPR shall be triple-tandem extruded with the conductor and insulation shield to prevent intersurface contamination. The insulation level shall be 133 percent. Average insulation thickness shall not vary by 90%.

The insulation screen shall consist of an extruded semiconducting layer applied directly over the insulation. The extruded layer shall be a thermosetting EPR with a volume resistivity of not over 10 ohm-meters at 90 Degrees C. This shall be followed by a 5 mil thickness copper shielding tape of suitable width helically wrapped with a minimum overlap of 12-1/2 percent. The shield shall uniformly distribute the electric field around the conductor within the cable insulation and screens. Copper shielding tape shall be applied in such a manner that the electrical continuity of the shielding will not be distorted or disrupted during normal installation and bending of cables. The semiconducting layer shall be easily removable (not requiring special tools) with out damaging the insulation.

The outer covering over the cable shall consist of an abrasion-, moisture-. oil-, heat-, weather-, sunlight-, and flame-resistant black Polyvinyl Chloride Jacket.

The cable shall be identified as described below. The outer surface of each cable shall be durably marked throughout its entire length with the manufacturer's identification, type of insulation, size of conductor, rated voltage, year of manufacture, and insulation thickness. Auxiliary insulation shielding and conducting jackets shall be conspicuously identified as conducting. The preceding identifications shall be repeated along the cable at regular intervals with unmarked surfaces not exceeding six inches.

Minimum factory test to be performed on the installed cables shall include: Alternating-current voltage test; insulation resistance test; direct-current voltage test; corona test, and metallic shield resistance. The Contractor shall furnish certified copies of the manufacturer results to the engineer for the engineers approval. Unless such results show compliance with all requirements of this specification, the cables shall not be accepted.

The Contractor shall provide written requirements and procedures for field insulation proof testing (DC High Potential) of the furnish cable. Reels shall be tested according to the furnished procedure upon arrival at the jobsite and shall be rejected if found deficient.

Medium Voltage Power Cable, Type HV, Terminations and Splices

The Contractor shall employ the services of a company specializing in medium voltage terminations and splices to perform all the medium voltage splices and terminations within substation #3 and on the trestle.

The power cable splices for shielded high molecular weight natural polyethylene insulation and ethylene propylene rubber insulation cables shall be factory-engineered kits that rebuild the insulation, copper shielding, and outer polyvinyl chloride jacket equivalent

to that of the original cable. When assembled, all splices shall be capable of passing all related ANSI and IEEE related tests. Splices shall be of a uniform-cross-section with construction features detailed on the contract drawings . The splice shall provide a waterproof seal.

The power cable terminations for ethylene propylene rubber insulation cables shall be factory engineered kits for the application. When assembled, all terminations shall be capable of passing all related ANSI and IEEE related tests. Terminations shall be of a high permittivity and high resistivity construction with features detailed on the contract drawings . The terminations shall help prevent the ingress of moisture.

10-3.06 PAYMENT

The contract lump sum price paid for modify electrical and communication system shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in modifying electrical and communication systems, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

SECTION 10-4. SEISMIC MONITORING ELECTRICAL SYSTEM

10-4.01 SCOPE

This work shall consist of installing the seismic monitoring system in accordance with the details shown on the plans, these special provisions, the provisions in Section 86, "Signals, Lighting and Electrical Systems" of the Standard Specifications, and the provisions in Chapter 6, "Specifications for Cabinet Models 332, 334 and 336", of the Traffic Signal Control Equipment Specifications.

Electrical work shall include furnishing all labor, materials, equipment and services required to construct and install the complete seismic monitoring electrical system shown on the plans.

System layouts are generally diagrammatic and location of equipment is approximate. Exact routing of conduits and other facilities and location of equipment is to be governed by structural conditions and other obstructions, and shall be coordinated with the work of other trades. Equipment requiring maintenance and inspection shall be located where it is readily accessible for the performance of such maintenance and inspection.

Related work.--Earthwork, foundations, sheet metal, painting, mechanical and such other work incidental to and necessary for the proper installation and operation of the seismic monitoring system work shall be done in accordance with the requirements specified for similar work in the Standard Specifications.

Order of work.--The Contractor shall first drill the down holes, construct the free field, mount the seismic sensor enclosures, install the recorder cabinets and the complete conduit system. Next, the Contractor shall pull all the seismic cables (without any splices) from each seismic sensor enclosure to the respective seismic recorder location as shown on the plans. Next, the Contractor shall insure that electrical power and telephone service is present at each of the recorder locations where applicable. Next, the Contractor shall notify the Engineer in writing at least 20 working days in advance when the Contractor wants The State Division of Mines and Geology (DMG) to install and test their equipment as specified elsewhere in these special provisions.

10-4.02 STATE FURNISHED MATERIALS

Attention is directed to Section 8-1.01, "State Furnished Materials", of these special provisions.

The following materials will be furnished to the Contractor:

Force balance accelerometer (FBA) pigtails
Seismic sensor mounting plates

The Contractor shall notify the Engineer in writing not less than 20 working days in advance when the Contractor wants the DMG to deliver the State Furnished material to the Contractor.

State furnished and installed material.-- The following materials will be furnished and installed by State forces:

Down hole seismic sensors and cable to surface
Seismic sensors on bridge and at free field
Seismic recorders

State furnished and installed material installation.-- After all Contractor supplied equipment, conduit and cable has been installed, the Division of Mines and Geology (DMG) shall be given access to the down holes and free field site near the east abutment, to all seismic sensor enclosures on the bridge, and to Substations No. 4 and 6 on the bridge to install and adjust the seismic sensors and recorders of the seismic monitoring system. Access shall include transportation of equipment on the job site, movement of stored materials or parked vehicles, traffic control, manlifts, boats, scaffolding, etc., where necessary. Access is for the purpose of installation, operational testing and to perform any necessary system troubleshooting and repair. The estimates below are for the actual work at the locations and **exclude** transit time to the work locations and the set-up times of any lifts, scaffolds, etc. Some of the work can be accomplished simultaneously and the DMG will meet with the Engineer and the Contractor at the job site to work out a mutually agreeable schedule.

1. Seismic recorder locations (3 Total):

a) The DMG will require access to the recorder cabinets prior to their installation for the purpose of measuring and preparing to mount the recorders into the cabinets.
b) The DMG will need approximately 3 days access per recorder location to install and wire the recorders.
c) The DMG will require access to each recorder location during the installation and testing of the seismic sensors wired to that specific recorder location.
d) The DMG will need approximately 3 days access per recorder location during the final system testing and any necessary troubleshooting and repair.

2. Bridge seismic sensor enclosure locations (13 Total):

a) The DMG will require approximately 30 minutes access time at each enclosure on a minimum of two occasions (installation and operational testing) to accomplish their work.

3. Down hole and Free field locations (5 Total):

a) The DMG will require approximately 1/2 day access time for each down hole and free field location plus two additional days for wiring and testing.

10-4.03 SUBMITTALS

Product data.--A list of materials and equipment to be installed, manufacturer's descriptive data, and such other data as may be requested by the Engineer shall be submitted for approval.

Manufacturer's descriptive data shall include complete description, performance data and installation instructions for the materials and equipment specified herein.

Manufacturer's descriptive data shall be submitted for the following:

Seismic cable
Telephone cable
Seismic sensor enclosures, Styles I and II
Down hole junction box
Seismic junction box
Free field box
Down hole box

10-4.04 CLOSEOUT SUBMITTALS

Project record drawings.--Project record drawings shall be submitted in accordance with the requirements listed below.

One set of the project plans shall be kept on file by the Contractor for the sole purpose of recording as-built information and shall be so marked. Data to be recorded shall include, but not limited to, all clarifications and change orders, location of underground utilities, and changes in size, manufacture or location of features shown on the plans. In addition, the locations of significant items such as main filters, controls, isolating valves, and similar items shall be highlighted on this set of project record drawings.

All corrections shall be made in red ink or red pencil. Superseded material shall be neatly lined out. Original figures shall not be eradicated nor written over. Each sheet shall be clearly marked as having "As-Built Changes" or "No As-Built Changes," as appropriate. The Contractor shall sign and date each sheet of the plans certifying that all information shown is correct.

Additional drawings shall be submitted when as-built information cannot be clearly shown on existing drawings. Supplemental drawings for as-built information shall be not less than 11" x 17" in size and shall have the contract number on each drawing.

Final location of all underground work shall be recorded by depth from finished grade and by offset distance from permanent surface structures, for example: buildings, curbs, walks, etc. Equipment within the building and all concealed conduits shall be recorded by offset distances from building walls.

The Contractor shall periodically review the set of record drawings with the Engineer during the progress of the work to assure that all changes and other required information are being recorded.

Before completion of the work, the Contractor shall request a review of the record drawings to determine completeness and adequacy. If the record drawings are unacceptable, the Contractor shall inspect, measure and survey the project and record the required additional information.

The record set of plans shall be delivered to the Engineer prior to acceptance of the contract.

10-4.05 CONDUITS AND FITTINGS

Conduit shall conform to Section 86-2.05 “Conduit” in the Standard Specifications and as specified in these special provisions.

Plastic coated rigid steel conduit shall be used exposed on the bridge or buried underground unless otherwise shown on the plans or specified in these special provisions.

Liquid-tight flexible metal conduit shall be used where flexible conduit is shown.

Rigid non-metallic conduit shall be used at the locations shown on the plans for direct underground burial outside the building foundation.

Conduit trade sizes are shown on the plans. No deviation from the conduit size shown on the plans will be permitted without written permission from the Engineer.

Conduits shall be tightly covered and well protected during construction using metallic bushings and bushing "pennies" to seal open ends.

Rigid non-metallic conduit bends of 30 degrees or greater shall be factory-made long radius sweeps. Bends

less than 30 degrees shall be made using an approved heat box.

A pull rope shall be installed in all empty conduits. At least 2 feet of pull rope shall be doubled back into the conduit at each termination.

Locations of conduit runs shall be planned in advance of the installation and coordinated with the seismic retrofit work in the same areas and shall not unnecessarily cross other conduits or pipe, nor block access to mechanical or electrical equipment.

Where practical, conduits shall be installed in groups in parallel, vertical or horizontal runs and at elevations that avoid unnecessary offsets.

Exposed conduit shall be installed parallel and at right angles to the building or bridge lines.

All raceway systems shall be secured to the building or bridge structures using specified fasteners, clamps and hangers.

Single conduit runs shall be supported by using one hole pipe clamps. Where run horizontally on walls in damp or wet locations, conduit shall be installed with "clamp backs" to space conduit off the surface.

Multiple conduit runs shall be supported with construction channel secured to the building or bridge structure. Conduits shall be fastened to construction channel with channel compatible pipe clamps.

Raceways of different types shall be joined using approved couplings or transition fittings.

All floor and wall penetrations shall be sealed water-tight.

Conduit terminations.--Rigid steel conduits shall be securely fastened to cabinets, boxes and gutters using 2 locknuts and specified insulating metallic bushing. Conduit terminations at exposed weatherproof enclosures and cast outlet boxes shall be made watertight using specified hubs.

Rigid non-metallic conduits shall be terminated inside the underground pull boxes with approved conduit bushings or fittings. All conduits shall enter the pull box at an angle of 45 degrees or more.

All future conduits terminated in underground pull boxes or exposed indoor and outdoor shall be provided with watertight conduit plugs.

10-4.06 CABLES AND CONDUCTORS

Seismic cable.-- Seismic cable shall be eight (8) tinned copper, insulated conductors (4 twisted shielded pairs with individual drain wires), AWG #22 (7 x 30 stranded) with insulation 0.007 inch thick. Cable shall have an overall aluminum-polyester shield, AWG #22 stranded tinned copper drain wires, an outer jacket 0.009 inch thick and an overall nominal outside diameter of 0.3 inch or less. Cable shall be instrument cable, NEC rated CLP2 plenum cable rated for 105 degrees C. Cable shall have a color code as specified below:

Color Code: 1st pair - red, black; 2nd pair - white, brown; 3rd pair - blue, violet;
4th pair - yellow, orange

Seismic cable shall be United Wire and Cable Co., Inc.; Consolidated Wire and Cable; or equal.

Telephone cable.-- Telephone cable shall be two (2) twisted conductor pairs, minimum AWG #24 tinned copper, polyvinyl chloride insulated with a chrome PVC jacket rated for 150 Volts.

Conductors.-Conductors shall conform to Section 86-2.08 “Conductors” in the Standard Specifications and as specified in these special provisions.

1. Conductors shall be type XHHW in wet and outdoor locations.
2. Conductors shall be type THHN in dry locations.

Wire connections and devices.--Wire connections and devices shall be pressure or compression type, except that connectors for No. 10 AWG and smaller conductors in dry locations may be preinsulated spring-pressure type.

Conductor and cable installation.--Conductors shall not be installed in conduit until all work of any nature that may cause injury is completed. Care shall be taken in pulling conductors that insulation is not damaged. An approved non-petroleum base and insulating type pulling compound shall be used as needed.

All cables shall be installed and tested in accordance with manufacturer's recommendations.

Splices and joints shall be insulated with insulation equivalent to that of the conductor.

Provide 6 inches of slack at each outlet and device connection. If the outlet or device is not at the end of a run of wire, connection shall be made with correctly colored pigtails tapped to the runs with splices as specified herein.

Branch circuit conductors in panelboards and load centers shall be neatly trained along a path from the breaker terminals to their exit point. The conductors shall have ample length to transverse the path without strain, but shall not be so long as to require coiling, doubling back, or cramming. The path shall transverse the panelboard gutter spaces without entering a gutter containing service conductors and, unless otherwise shown on the plans, without entering the gutter space of any panelboard feeder.

All pressure type connectors and lugs shall be retightened after the initial set.

Splices in underground pull boxes and similar locations shall be made watertight.

Seismic cable installation.--Seismic cables shall be installed continuous without any splices. One cable shall be installed for each sensor channel.

Conductor identification.--The neutral and equipment grounding conductors shall be identified as follows:

Neutral conductor shall have a white or natural gray insulation except that conductors No. 4 and larger may be identified by distinctive white marker such as paint or white tape at each termination.

Equipment grounding conductor shall be insulated with green insulation over its entire length except that conductors No. 4 and larger may be permanently identified by distinctive green markers such as paint or green tape over its entire exposed insulation.

Identification shall be made with one of the following:

1. Adhesive backed paper or cloth wrap-around markers with clear, heat shrinkable tubing sealed over either type of marker.
2. Self-laminating wrap around type, printable, transparent, permanent heat bonding type thermoplastic film markers.
3. Pre-printed, white, heat-shrinkable tubing.

Seismic cable identification.-- Each seismic cable shall be tagged with the channel number as shown on the plans at each termination. Identification shall be made with one of the methods specified under "Conductor Identification".

10-4.07 ELECTRICAL BOXES

Recorder cabinet.-- Recorder cabinets A and B shall conform to Section 2 “Housing Requirements” in Chapter 6, “Specifications for Cabinet Models 332, 334 and 336”, of the Traffic Signal Control Equipment Specifications with the following exceptions:

Paragraph 6.2.1 is amended to read:

The housing shall include, but not be limited to, the following:

Enclosure	Hinges and Door Catches
Doors	Gasketing
Latches/Locks	Cage supports

Paragraph 6.2.4 is amended to read:

The housing ventilation including intake, exhaust and filtration are as follows:

Paragraphs 6.2.4.3 and 6.2.4.4 shall be deleted.

In addition, the police panel and cabinet cage are not required.

Cabinet shipping requirements - The cabinet shall be delivered mounted on a plywood shipping pallet. The pallet shall be bolted to the cabinet base. The cabinet shall be enclosed in a slipcover cardboard packing shell. The housing doors shall be blocked to prevent movement during transportation.

All bolts, nuts, washers, screws (size 8 or larger), hinges and hinge pins shall be stainless steel unless otherwise specified.

Seismic sensor enclosure (Style I).-- Seismic sensor enclosure (Style I) shall be a NEMA Type 4X, 14”x12”x6”D 316L stainless steel enclosure. The enclosure shall include vents as shown on the plans. A

316L stainless steel padlock hasp shall be included. A nameplate with the inscription "SEISMIC" shall be installed on the front cover. The enclosure shall be Hoffman, Catalog No. A-1412CHNFSS6; Circle AW, Catalog No. 14126-4XSCHC (both enclosures without upper and lower mounting flanges); or equal.

Seismic sensor enclosure (Style II).-- Seismic sensor enclosure (Style II) shall be a NEMA Type 6, 12"x12"x6"D cast iron box with cast iron cover. Cover shall be marked "SEISMIC" with 1/4" high capital letters. Cast mounting lugs shall be attached on two opposite sides, minimum of two lugs each side. One each bossed, drilled and tapped (NPT) hole to accept one inch conduit centered between mounting lugs on one side only. One each mounting button drilled and tapped for 1/4" x 20 located in the center (± 1/8") of the inside bottom of the box. Finish to be hot dip galvanized. The enclosure shall be O-Z Gedney, Catalog No. YF-121206-SUB with one mounting button, Catalog No. 1MBT, mounting lugs, Catalog No. 4ML1816, and one hole, Catalog No. BDT100; Crouse-Hinds, Catalog No. WCB121208-1-000G (except box shall be 6" deep); or equal.

Down hole junction box.-- Down hole junction box shall be the same as seismic sensor enclosure (Style II) except the box size shall be 14"x8"x6"D. Cast mounting lugs shall be attached on 8" sides, minimum of two lugs each side. One each bossed, drilled and tapped (NPT) hole to accept two inch conduit centered between mounting lugs on one side only. One each bossed, drilled and tapped (NPT) hole to accept a one inch water tight strain relief connector per down hole cable as required. These holes are to be centered between the lid and the bottom along a 14" side of the box. The box shall be O-Z Gedney, Catalog No. YF-140806-SUB with mounting lugs, Catalog No. 4ML1816, one hole, Catalog No. BDT200, and appropriate number of holes for down hole cables, Catalog No. BDT100; Crouse-Hinds, Catalog No. WCB120806-3-0000G0( )00 (except box shall be 14" long); or equal.

Seismic junction box.-- Seismic junction box shall be a NEMA Type 4 cast iron box with cast iron screw cover of the size as shown on the plans. A nameplate with the inscription "SEISMIC JUNCTION BOX" shall be installed on the cover.

No unused openings shall be left in any box. Knockout seals shall be installed as required to close openings.

Junction boxes shall be installed at the locations and elevations shown on the plans or specified herein. Adjustments to locations may be made as required by structural conditions and to suit coordination requirements of other trades.

Pull boxes.-- Pull boxes shall conform to Section 86-2.06 "Pull Boxes" in the Standard Specifications and as specified in these special provisions.

Free field box shall be a 4'x4'x2'D electrical pull box with steel checker plate cover.

Pull box installation.--Electrical pull box covers shall be marked "ELECTRICAL." Seismic cable pull box covers shall be marked "SEISMIC". Telephone service pull box covers or lids shall have plain, unmarked covers.

Down hole box.-- Down hole box shall be high density reinforced concrete box having an inside diameter of 14 inches minimum. The box shall be designed for installation in heavy traffic areas. Box cover shall be cast iron. Box cover shall be marked "SEISMIC".

Down hole box installation.-- The top of the down hole shall be flush with the finished surface in paved areas and 2 inches above the finished grade in unpaved areas. Where conduits enter the down hole, the space around the conduits shall be grouted tightly or cast in the wall.

10-4.08 RECEPTACLES AND SWITCHES

Duplex receptacles.-- Duplex receptacles shall be NEMA Type 5-20R, 3-wire, 20-ampere, 125-volt AC, safety grounding type, ivory color, specification grade receptacle suitable for wiring with stranded conductors.

Disconnect switch.-- Disconnect switch shall be 20-ampere, 120/277-volt AC, specification grade, ivory color switch with silver cadmium alloy contacts. Switch shall be suitable for wiring with stranded conductors. Switch shall be mounted inside a NEMA 1 enclosure. A nameplate with the inscription "DISCONNECT SWITCH" shall be installed on the cover.

10-4.09 MISCELLANEOUS MATERIALS

Pull ropes.-- Pull ropes shall be nylon or polypropylene with a minimum tensile strength of 500 pounds.

Watertight conduit plugs.--Watertight conduit plugs shall be a hollow or solid stem expansion plugs complete with inner and outer white polypropylene compression plates and red thermoplastic rubber seal. Seal material shall be non-stick type rubber resistant to oils, salt, and alkaline substances normally available at the construction sites.

Anchorage devices.-- Anchorage devices shall be corrosion resistant toggle bolts, wood screws, bolts, machine screws, studs, expansion shields, and expansion anchors and inserts.

Anchorages.--Hangers, brackets, conduit straps, supports, and electrical equipment shall be rigidly and securely fastened to surfaces by means of toggle bolts on hollow masonry; expansion shields and machine screws, or expansion anchors and studs or standard preset inserts on concrete or solid masonry; machine screws or bolts on

metal surfaces; and wood or lag screws on wood construction.

Anchorage devices shall be installed in accordance with the anchorage manufacturer's recommendations.

Electrical supporting devices.-- Electrical supporting devices shall be one hole conduit clamps with clamp backs, hot-dipped galvanized, malleable cast iron.

Construction channel shall be 1 5/8" x 1 5/8", 12-gage galvanized steel channel with 17/32 inch diameter bolt holes, 1 1/2 inches on center in the base of the channel.

Ground rod(s).--Ground rod(s) shall be a 3/4 inch (minimum) galvanized or copper clad steel rod, 10 feet long.

Ground rod(s) installation.--The ground rod(s) shall be driven vertically until the top is 6 inches above the surrounding surface. When vertical penetration of the ground rod cannot be obtained, an equivalent horizontal grounding system, approved by the Engineer, shall be installed.

Nameplates.-- Nameplates shall be laminated phenolic plastic with white core and black front and back. Nameplate inscription shall be in 1/4" high capitals letters etched through the outer layer of the nameplate material.

Equipment identification.--Equipment identified with nameplates shall be fastened with self-tapping, stainless steel screws.

10-4.10 TESTING

Functional testing.-- After all the seismic sensors and recorders have been installed and connected by the DMG, the seismic monitoring system shall be tested by the DMG to insure that the system functions properly. The Contractor shall make necessary repairs and replacements at his expense if the source of the problem is determined to be part of the Contractor's scope of work.

After the seismic monitoring system installation work has been completed, the seismic monitoring system shall be tested in the presence of the Engineer to demonstrate that the seismic monitoring system functions properly. The Contractor shall make necessary repairs, replacements, adjustments and retests at his expense.

10-4.11 TELEPHONE SERVICE

PART 1.- GENERAL

SUMMARY

Scope.--This work shall consist of furnishing and installing service equipment in accordance with the requirements of the serving utilities, the details shown on the plans and these special provisions.

Utility connection.--The Contractor shall make all arrangements and obtain all permits and licenses required for the extension of and connection to each utility service applicable to this project, shall furnish all labor and materials necessary for such extensions which are not performed or provided by the utility, and shall furnish and install any intermediate equipment required by the serving utilities.

Upon written request by the Contractor, the State will pay all utility permits, licenses, connection charges, and excess length charges directly to the utility. Such request shall be submitted not less than 15 days before service connections are required.

The costs incurred by the Contractor for the extension of utilities beyond the limits shown on the plans, and in furnishing and installing any intermediate equipment required by the serving utilities, will be paid for as an ordered change as provided for elsewhere in these special provisions.

Full compensation for any costs incurred by the Contractor to obtain the permits and licenses shall be considered as included in the contract lump sum price paid for seismic monitoring system and no additional compensation will be allowed therefor.

SUBMITTALS

Installation details.--The Contractor shall submit complete service installation details to the serving utilities for approval. Prior to submitting installation details to the serving utility, the Contractor shall have submit said drawings as specified elsewhere in these special provisions to be reviewed and stamped "APPROVED" by the Engineer. Submittals shall be approved by the serving utility prior to commencing work.

PART 2.- EXECUTION

Installation of service equipment shall be in accordance with the requirements of the serving utilities as shown on the approved installation details.

10-4.12 MEASUREMENT AND PAYMENT

The contract lump sum price paid for seismic monitoring electrical system shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in seismic monitoring electrical system complete in place, including testing of the said system as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.